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ABSTRACT

The four papers in this volume discuss various facets of the poverty-demography interaction: the rationale for the desired family size of the poor, the problems of attaining such size, the effect of family size/structure on household economy, and the future well-being of the children of the poor. "Mass Poverty, Demography, and Development Strategy: A Selective Survey" (B. Abegaz) is a selective survey of the major economic and demographic characteristics of mass poverty. "Poverty and Household Responses in Rural Bangladesh (Q. M. Khan) explores the linkages between rural poverty and demographic behavior, using 1976-77 data from the Rural Poverty Survey of Bangladesh. "Child Fostering and High Fertility Interrelationships in West Africa" (U. C. Isiugo-Abanihe) examines the interrelationships between socio-cultural and demographic events that arise from the prevalent practice of child fostering, with an emphasis on the practice in Ghana and Nigeria. "Underdevelopment, Urban Growth, and Collective Social Action in Sao Paulo (Brazil)" (C. H. Wood and S. D. McCracken) raises a host of philosophical and substantive issues concerning the nature of the urban labor market in Sao Paulo, Brazil. (BZ)

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The Economic Demography of Mass Poverty

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Berhanu Abegaz
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FOREWORD

> For whosoever hath, to him shall be given,
> and he shall have more abundance:
> but whosoever hath not, from him shall be
> taken away even that he hath.
>
> --Matthew 13:12

This special issue on the economic demography of mass poverty came out of a proposal I submitted to the Board of Editors of this journal. The Board graciously agreed to the idea and asked me to guest-edit a set of "original papers primarily of the 'case study' type which investigate concrete conditions as illustrative examples of demographic responses to poverty." The papers selected for this volume examine the nature of mass poverty, the extent of the so-called "Matthew effect" in the Third World, and some of the responses of the poor to their predicament.

To bring out the human drama that is often masked by statistical and economic categories, it is most appropriate to begin with the following prologue written by Professor Qaiser M. Khan of Bowdoin College:

"The old man walked on the narrow path on that sunny winter afternoon. He wore a shirt that was only technically a piece of clothing -- holes in it exposed a greater part of his body than covered it. His lungi was tattered though in a slightly better condition. He had a straggly wisp of white beard, his hair was all white. When he opened his mouth he showed a few teeth. To the left of him gold and green fields of rice were almost ready for the aman harvest. The aromatic smell of fields vied with the smell of rotting water hyacinths that some farmers had piled up to form a floating island on the pond. To his right ran a slow moving river, the boats with their multicolored sails look attractive in the warm sun. But the old man was oblivious to all this. He was conscious of a pain -- a pain that consumed his whole being. His hunger seemed to devour him. He tried eating water hyacinths -- that seemed to make it worse. He stumbled along. His head was dizzy. All the sights and sounds of the harvest season came to him through a blur. The rice ready for harvest reminded him of his intense hunger. The crows shrieked as farmers' children chased them away from the fields. The children were happy. The old man reached a small village; he had worked for farmers here when he was younger. All of them would have helped him when he needed. Now, they were gone. There was no one to turn to. He saw a banana tree with bananas ready to eat. His hunger drew him to it. He pulled off a banana and started to eat it. It was so good. Suddenly he heard a shout. A youth ran up and snatched the banana from him. The youth threatened to beat him if he did not leave. Slowly, the old man stumbled away, the pain of hunger made even more excruciating by the taste of food. The youth watched him go. Then he threw the half-eaten banana into the pond, muttering about thieves and vagabonds.

It was getting dark, the old man stumbled on. Insects were chirruping in the bushes. The pain of hunger was getting worse. His feet could not support him any longer. He had to sit down. He sat under the mango tree. He thought over his life. The great famine! That was for him better than normal. The soup kitchens provided food. His son had turned him out of the house many months ago because there was no room or food even for the children. The old man remembered the tears in his son's eyes. Suddenly, he was tired. He felt a need to relax. He leaned back against the tree and relaxed. The weariness and pain consumed him. He slept.

The sun rises amid birdsong. At the base of the tree the old man is motionless. Passers-by stop. It's Hari Das. He's dead. But he was only forty."

B.A.

INTRODUCTION

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This issue of Studies in Third World Societies is devoted primarily to the analysis of the demographic dimensions of 'mass' poverty in societies undergoing the process of economic development, and in some cases, economic involution. Mass poverty is especially acute among the bottom 40 percent or so of the population of the developing world, and some of the unusual demographic features of those countries are often attributed to the presumably "self-defeating" behavior of poor households. And yet, few studies examine the nature of the demographic responses of the poorest segments of the population to their economic plight aside from inferences based on aggregate demographic parameters. And so today, as in the classical debates on the English Poor Laws, the response to poverty is being confused with its primordial causes.

The categories adopted here in terms of the "poor" versus the "non-poor" are deliberately descriptive much like the notion of 'informal sector.' The poor and the ultra-poor of the Third World are a heterogeneous group (domestics, the landless, casual workers, non-casual but low-wage workers, small artisans and traders, minifundistas, etc.) who suffer from largely self-perpetuating pauperization (irregular employment, low income, malnutrition, and instability of family life). The poor are predominantly rural and female. For some poverty is life-cyclical while for an increasingly large fraction, especially in the low-income countries, marginalization is reproduced over generations [Harrison, 1981].

The following quotes illustrate the multi-faceted nature of mass poverty:

> We all know that most of the world's people are poor, that they earn a pittance for their labor, that half and more of their meager income is spent on food, that they reside predominantly in low-income countries, and that most of them are earning their livelihood in agriculture. What many economists fail to understand is that poor people are no less concerned about improving their lot and that of their children than rich people are.
>
> Theodore W. Schultz
> Nobel Lecture (1980)

> The nature of accumulation under private enterprise necessarily generates inequality and is therefore condemned to meeting the trivial wants of the few before the urgent needs of the many.
>
> Joan Robinson (1977)

> The world has undergone far-reaching changes in the past decade. Significant progress in many fields important for human welfare has been made through national and international efforts. However, for a large number of countries it has been a period of instability, increased unemployment, mounting external

> indebtedness, stagnation and even decline in economic growth. The number of people living in absolute poverty has increased.
>
> International Conference on
> Population (1984)

> Developing countries are like long-distance runners. In their race against time to eliminate poverty, rapid population growth is an additional burden, which regardless of their inherent strengths, slows them down. Moreover a quick glance at the race suggests it is an unfair one. The weaker runners are those advancing most slowly and already behind the pack; they also have the highest population growth rates, and are thus the most severely handicapped.
>
> Nancy Birdsall (1980)

> Mass poverty is a tightly integrated phenomenon. And so, accordingly, is the remedial action. The breaking of accommodation and the provision of several escapes ... are parts of an organic whole.
>
> John Kenneth Galbraith (1979)

A growing body of evidence suggests that the poor in less developed countries (LDCs) perceive their plight in terms that are often radically different from those of scholar-analysts, and engage in active responses accordingly: family members participate in diverse activities in order to minimize risk; migration is often cemented by a network of kinship/compatriot ties; and small gains by the urban poor tend to fuel individualistic aspirations for social mobility especially among the young [Lloyd, 1982]. Demographic responses of the poor tend to be individually rational although the adoption of some strategies (such as large family size) by most may turn out to be socially dysfunctional -- the so-called isolation paradox. And, as

Galbraith emphasizes, remedial actions designed to break the poverty/reaction-to-poverty cycle need to be so integrated as to embrace a sustainable package of employment generation, investment in human resources, and asset redistribution.

The four papers in this volume discuss various facets of the poverty-demography interaction: the rationale for the desired family size of the poor, the problems of attaining such size, and the effect of family size/structure on household economy and the future well-being of the children of the poor. The papers are briefly summarized below.

The paper by Abegaz is a selective survey of the major economic and demographic characteristics of mass poverty. It examines the theoretical issues involved in identifying and aggregating poverty, assesses the extent of international inequality and national poverty, and explores the demography of mass poverty from several theoretical perspectives by focusing on the relationships between income distribution processes and demographic processes. It concludes with a set of general policy implications.

The Khan paper explores the linkages between rural poverty and demographic behavior using 1976-77 data from the Rural Poverty Survey of Bangladesh. He finds that an inverted U-shaped relationship exists between household size and landholdings; that poorer households show a tendency to have greater excess mortality for female children; and that poverty is seen to limit viable options especially for the lowest segments of the poor by trapping them in an abject state of deprivation.

Isuigo-Abanihe examines the complex interrelationships between socio-cultural and demographic events that arise from the prevalent practice of child fostering in West Africa. Using data primarily from Ghana (1971) and Nigeria (1973), he underscores the economic importance of child circulation with the kinship system and its consequences for fertility. The statistical analyses reveal a positive association between fertility and the practice of fostering-out children (hypothesized as reflecting the advantages inherent in the sharing of resources and obligations), and show that the practice is common among all segments of the population. The paucity of poverty variables, however, precluded exploration of such issues as the sending of children into service as a possible means of reducing the costs of unwanted fertility by the poor.

The paper by Wood and McCracken raises a host of philosophical and substantive issues concerning the nature of the urban labor market in Sao Paulo, Brazil. The historical roots, the structure of inequality, and the responses of the working class to urban underdevelopment are explored in a framework which specifies the nature of the social constraints within which various groups attempt to ensure their survival and growth.

Although the foregoing papers probe only some of the links between poverty and demography in depth, the persistence of absolute poverty (punctuated by major post-1950 famines in China, Bangladesh, and Sub-Saharan Africa) has gained it respectability as an object of serious analysis going beyond the usual moralistic pronouncements [Sen, 1983]. Knowledge of the dynamics of mass poverty in all its dimensions is essential for the formulation of effective international and national strategies to eliminate it altogether.

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MASS POVERTY, DEMOGRAPHY, AND DEVELOPMENT STRATEGY: A SELECTIVE SURVEY*

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*The author gratefully acknowledges numerous comments and criticisms received from Susan Feiner, David Finifter, and Martin Garrett.

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I. INTRODUCTION

The relationships among inequality, poverty, demographic factors, and economic growth have only begun to receive the attention they deserve during the past decades following pioneering contributions by Leibenstein, Kuznets, and others [Leibenstein, 1957; Kuznets, 1963, 1976, 1980; Geertz, 1963]. Until very recently, and aside from classical economics, these issues had been peripheral to the core of the conventional disciplines: income distribution theory in orthodox economics, a general theory of demographic processes in orthodox demography, and a systematic exploration of development 'style' in conventional development economics. Yet the interrelationships among income distribution, demographic processes, and development strategy lie at the heart of economic demography as it pertains to developing countries.

The concern with income distribution and demographic forces is being manifested in the areas of both theory and policy. For one, the GNP fetishism of growth theories received close scrutiny as it became evident that absolute poverty did not decline appreciably in some developing countries (Brazil, Mexico, Colombia) despite rapid growth in GNP per capita; many rapidly growing economies reduced poverty largely by employing labor-intensive strategies with some asset redistribution (Korea, Taiwan, China); a few other slow growing countries fulfilled the same objective through public transfer programs (Sri Lanka, Tanzania, Cuba); and many others in South Asia and Sub-Saharan Africa suffered from an increase in absolute poverty concomitant with economic stagnation [Sen, 1983, 1980; WDR, 1980]. New approaches to development have sprung up with focus on basic needs [Hicks and Streeten, 1979], redistribution with growth [Chenery et al., 1974], and entitlements [Sen, 1979, 1981] -- all promising to integrate income inequality with asset distribution, human capital, and the patterns of employment.

It is the objective of this highly selective survey of the literature to examine the theoretical, empirical and policy dimensions of population/poverty interrelations in developing countries. To meet this objective the paper is organized into five sections. An overview of the problems of identifying and aggregating poverty is presented in Section 2, followed by a brief assessment of the empirical evidence on the dual gap (between rich and poor countries, and within the poor countries) in Section 3. Using a schematic conceptual framework, the demographic dimensions of mass poverty and the competing theoretical explanations are examined both at the macro and household levels in Section 4. In light of these discussions, the last section explores the relationships between a country's long-term development strategy and the short-term policy options available to reduce and eventually eliminate abject poverty.

II. THE ECONOMICS OF MASS POVERTY

Following Galbraith [1979] and others, a distinction will be made between 'case' poverty that exists in achievement-oriented and affluent societies from 'mass' poverty in largely ascription-oriented, low-income societies. The analysis of the structure and dynamics of mass poverty that afflicts over one billion citizens of the Third World entails several tasks: distinguishing the moderately poor from the ultra-poor, devising an index of poverty gap and its distribution (i.e. aggregation), establishing the link between international inequality and national poverty, and establishing the duration and turnover of poverty for various household types as well as pinpointing its causes and consequences. The problems of identification and aggregation are taken up in this section.

2.1 Identifying the Poor

Any theory of poverty concerned with the analytical problems of identifying the poor and constructing a consistent index of poverty, faces two major challenges. One challenge is implicit in the view that "poverty is in the eye of the beholder," and that the moral element inherent in the concept precludes meaningful scientific judgment. As Sen [1979] has argued correctly, poverty analysis can be a factual rather than an ethical exercise insofar as it assesses the predicament of the affected groups while taking note of the prescriptions made by members of the community.

The second challenge involving the question of where to draw poverty lines is, however, a bit more complex. Inter-country comparisons of poverty require not only the demarcation of a common subsistence level (i.e. absolute poverty) but also the establishment of socially defined relative poverty lines that may differ across countries, and over time in the same country. The definition of poverty must, therefore, include elements of both absoluteness and relativity. Since the concepts of poverty and inequality are distinct, the extent of inequality between the poor and the non-poor, and also among the non-poor and the poor constitute important dimensions of the poverty problem. Inequality among the poor themselves raises important index number problems for aggregate poverty measurement, while inequality among the non-poor does have implications for the pace of economic growth through the savings/investment dynamic.

How does one establish an absolute poverty line? Several alternative measures, which may be classified into two major categories, are discussed in the literature: input-based measures, and outcome-based measures. The input-oriented approaches include poverty-line disposable income (arising from domestic production, market employment, and public transfers) and household consumption expenditure (especially food outlay as a fraction of total expenditure for its obvious basis in Engel's Law) -- all appropriately adjusted for household size and composition

[Sen, 1979; Lipton, 1983a; Srivansan, 1977; Grootaert, 1983]. These indices provide us with an indirect measure of welfare (consumption) which can be distorted if differences in prices, composition of market basket, climate, intra-household distribution of consumption, and the like are not fully taken into account.

The result-oriented approaches such as the physical quality of life index (PQLI) measure welfare directly while physical indicators such as a vector of basic needs or caloric intake needed to meet minimum requirements for active life (for each age, sex and activity group) come closest to being direct poverty measures [FAO, 1973; Morris, 1979]. In all cases, per-person and per-consumer unit measures are superior to per-household or per-family measurements since the former take account of the impact on real welfare of household structure and household size as evidenced by such phenomena as economies of scale in household consumption [Kuznets, 1976]. Lipton argues that caloric intake relative to a carefully specified food adequacy standard provides us with a reasonably robust measure of both moderate and ultra-poverty.

Relative poverty varies greatly across societies and over time, and it is more difficult to measure. Some communities might strive for the elimination of absolute poverty while others may, in addition, opt for a target of 40 to 50 percent of society's median real income as the minimum acceptable income. Given such socially defined thresholds, standard GNP-weighted growth rates can be compared with poverty-weighted growth rates of the economy [Chenery, et al., 1974] to see if these equity objectives are being fulfilled.

2.2 Measuring the Extent of Poverty

Establishing an appropriate poverty line is only the first step in poverty analysis. The second step involves constructing a poverty index that takes into account poverty gaps and relative deprivation, the so-called aggregation problem.

The most common measure of the magnitude of poverty is the head-count ratio (H), written as

$$H = Q/N \qquad (1)$$

where Q is the number of people falling below a certain poverty line (PL), and N is the total population. Since the above poverty rate, among other things, does not provide an idea of how far below the PL many of the poor happen to fall, measures that capture poverty gaps are clearly superior [Sen, 1979].

Assuming that the poor consist of homogeneous individuals, the aggregate shortfall of income for all the poor for a prescribed PL, Z, takes the form:

$$T = \sum_{i}^{Q} (Z - Y_i) = Q(Z - M) \qquad (2)$$

where Y_i is the income of individual _i_ and M is the average real income of the poor. Expressed as an average income shortfall, T can be converted into an income-gap/needs ratio, I:

$$T = \frac{T}{QZ} = \frac{Z - M}{Z} \qquad (3)$$

The income-gap ratio is, unlike the head-count ratio, insensitive to the size of the population in poverty. Like the head-count ratio, it also ignores any transfers of income among the poor or any "trickle-up" to the rich so long as no one crosses the PL. The two measures, therefore, capture only the extent of average deprivation [Sen, 1979, 1981; Osmani, 1982; Clark, et al., 1981].

In the special case where all the poor have the same income (i.e. no relative deprivation among the poor), the product of H (proportion deprived) and I (degree of average income deprivation) yields what Sen [1981] calls the 'normalized absolute deprivation index,' P:

$$P = H \times I = \frac{T}{NZ} \qquad (4)$$

P is simply the "poverty gap" as a fraction of total income required to wipe out poverty (not necessarily sustainable) through redistributive policies.[1]

However, the reality of inequality of income among both the poor and the non-poor calls for an index of poverty that takes the element of relative deprivation into account, i.e. the implications of some individuals falling barely below the societal PL while others may be suffering from chronic hunger. As a pioneer in this area, Sen suggests a simple way of constructing an index (S) by combining inequality measures such as the Gini index (G) with poverty measures (H or I) using a Borda-type rank-order weighing.[2] If r_i is the rank of person i starting from the least poor to the poorest -- in effect assigning greater weight (rank-value) to income received by the more deprived -- it can be shown [Sen, 1979] that

$$S = H\{I(1 - I)G\} \qquad (5)$$

where G stands for the Gini coefficient of the distribution of income among the poor. Thus, the Sen Index (S) is a function of H (reflecting the relative size of the poverty population), I (reflecting the overall income gap), and G (reflecting intra-poor income inequality). Despite the virtues of the refined indices, they are often not available for many countries.

Several issues of interpretation can be raised with respect to S, three of which are particularity germane. First, monetary income may not be an accurate measure of welfare defined in terms of command over consumption goods. Second, whether an increase in S should be viewed as good or bad largely depends on the nature of the social welfare function which is difficult to specify [Osmani, 1982]. And third, the relativeness inherent in the concept of poverty suggests that the aggregate poverty index should also reflect the relative deprivation of the poor with respect to the non-poor [Clark, et al., 1981]. As the foregoing survey demonstrates there are many issues involved in measuring and aggregating poverty. Here we have presented several of the more promising approaches to these issues which have emerged from the rapidly growing literature dealing with such problems.

2.3 The Poor and the Ultra-Poor

Even a well-constructed poverty index proves inadequate for certain types of poverty analyses (such as analysis of starvation and famine) since it aggregates too much. The poor are heterogeneous not only in terms of the poverty gap but also from the standpoint of sectoral and regional concentration, occupational clusters, employment status, and the acuteness of undernutritional risk. As Lipton [1983a:2] points out, casual empiricism suggests certain distinct discontinuities between the degree of poverty and its correlates:

> The 'discontinuities' do not normally take the form of sudden, sharp rises or falls -- as income or outlay, per person or per consumer unit increases -- in proportion of persons within a given income or outlay interval. Rather there are reversals or intensifications -- i.e., respectively, turning-points or points of inflection -- in behavior, as welfare changes around levels of great poverty. It is well-known that per-person income and outlay are usually distributed more or less lognormally. However, as these crude welfare indicators fall, adult female workforce participation rates increase until a "welfare" level signifying extreme poverty is reached -- and then decrease with further falls in welfare. Ratios of food spending to total outlay, around much the same point on the welfare scale, shift from steady rises as poverty increases, to a steadily increasing function of poverty increases, to a more or less constant 80-85% level. Unemployment rates, a steadily increasing function of poverty, increase more sharply at very low income levels, and become more seasonally-unstable. [emphasis taken]

Dividing the poor into two groups, the moderately poor (M-Poor) and the destitute or ultra-poor (U-Poor), enables us to begin to understand the importance of vulnerability and risk among the poor with significant policy implications. If we employ the operational definition of poverty as entailing insufficient income or expenditure in order to provide the FAO/WHO [FAO, 1973] caloric requirements -- for each age, sex and economic activity group -- U-poverty will then constitute failure to meet more than 80% of the 1973 requirements. These and other attributes of the poor and the destitute, based on scanty evidence, are summarized in Table 1.

Since many of these characteristics will be explored below, suffice it to say here that the ultra-poor are most prone to die of starvation and to suffer disproportionately during famines. They also benefit the least from most anti-poverty programs and, therefore, require special attention.

In this regard, Amartya Sen's call for the adoption of the 'entitlements approach' to poverty analysis is worth noting. 'Entitlements' are the set of commodity bundles at a person's command. They are derived from one's endowments (assets, labor power, public transfers), and their value in exchange with man (trade) and with nature (production) in a given economic system. He demonstrates, for example [Sen, 1981], that a decline in food supply is a necessary but not sufficient condition for famine mortality. The poor, and especially the ultra-poor (the assetless such as farm laborers and vulnerable nomads), are most prone to starvation and famine-related deaths -- even when overall food availability is adequate and markets are competitive -- as a result of entitlement failures (market collapse for the resources of the poor and limited access to public transfers).

III. INTERNATIONAL INEQUALITY AND NATIONAL POVERTY

The relationships between international inequality and national poverty are complex but important for the analysis of mass poverty for at least two reasons: (1) the sources and causes of differential economic performance among countries (or regions) suggest ways of dealing with contemporary underdevelopment [Reynolds, 1983; Morawetz, 1975], and (2) the mechanisms of transmission of inequality on the one hand, and opportunities for transfer of technology, finance and market outlets on the other, are inextricably linked with national poverty. Since an examination of the debates on the theoretical issues underlying these relationships clearly goes beyond the modest scope of this paper

Table 1

Some Characteristics of the M-Poor and the U-Poor

Characteristics	M-Poor	U-Poor
Budget Share of Food Items	60-80%	80% +
Undernutrition and Malnutrition	Moderate	Acute
Labor Force Participation Rates (relative to non-poor)	Highest	Higher
Share of Population	15-35%	10-20%
Spatial Concentration	Urban, rural	Rural
Household Size	Large	Moderate
Nucleation of Household	Moderate	High
High Priority of Assistance Needed	Assets, Human capital	Nutrition Health

Notes: The poor primarily consist of small farmers, landless laborers, the urban underemployed, marginalized nomads and small tribes, and the physically handicapped. Over half of the poor are self-employed.
Lipton [1983a, 1983b].
Sen [1981].

[see Seligson, 1984], we limit ourselves to an overview, based on the latest data available, of the extent and structure of global mass poverty as a background for the subsequent examination of its demographic dimensions.

3.1. International Inequality

The available historical evidence shows that since 1850, despite the trebling of world population, income per person has increased six times in real terms; life expectancy has increased dramatically; and education has become widespread with notable gains in less-developed countries (LDCs) since 1950 [WDR, 1984]. But these averages mask important features of recent growth. In the century since the second industrial revolution (1880-1980), the developing regions maintained their population share while failing to retain over half of their share of production (see Table 2). Despite the post-1950 unprecedented gains (concentrated in a handful of countries), absolute differences in per capita income increased across development levels; income inequality within countries increased in most LDCs; and even absolute poverty increased in some (primarily in Africa, South Asia and parts of Latin America) especially among the increasingly marginalized peasantry [Obregon, 1974; WDR, 1979].

The extent of inequality within development groups is almost as striking (Table 3). Among the high-income group are included the structurally underdeveloped but oil-rich Arab countries, most of the European socialist countries, and the industrialized capitalist nations (with Mediterannean and British Isles countries on the lower end and Scandinavia, the U.S. and Switzerland on the upper end). A new group of developing countries have sufficiently advanced economies by now to warrant the label 'newly-industrialized countries' or NICs with an average per capita income three times that of the moderately poor and eight times that of the poorest LDCs, a gap that cannot be reduced appreciably even with Kravis adjustments [Kravis, et al., 1982] for exchange-rate distortions (see Table 6).

The situation among the poorest LDCs which contain half of the Third World population is of utmost concern: income growth has been the lowest while population growth

TABLE 2
INTERNATIONAL INEQUALITY
1800 - 1980

	Population (Millions)	Production (Billions) (1980 Dollars)
World		
1800	944	230
1900	1673	970
1950	2417	2630
1980	4333	11720
LDCs (Share)	(%)	(%)
1800	74	44
1900	66	19
1950	67	17
1980	75	21

Source: World Development Report 1984 (Page 6).

TABLE 3

POPULATION AND INCOME LEVELS BY DEVELOPMENT GROUP

Income Class	Population (Billions) 1982	Population (Billions) 2000	GNP Per Capita (1982)	Labor Force in Agri. (1980)
Low-Income	2.27	3.10	$ 280	72%
China and India	1.73	2.19	290	69
Others	0.54	0.91	250	73
Middle-Income	1.16	1.74	1,520	46
Lower	0.67	1.02	840	56
Upper	0.49	0.72	2,490	30
High-Income	1.12	1.24	---	---
Oil Exporters	0.01	0.03	14,820	46
Capitalist	0.72	0.78	11,070	6
Socialist	0.38	0.43	5,000[a]	18

Sources: World Development Report, 1984, Table 1, 19 and 21.

[a] White [1984:107]

has been the highest. Although more than two out of three labor force participants eke out their subsistence in agriculture, both India and China boast industrial sectors that are ranked among the 10 largest in the world. With sluggish (in South and South East Asia) or declining (Sub-Saharan Africa) growth of agricultural productivity the low-income LDCs account for much of the mass poverty in the world, the bulk of which is located in their rural areas.

The question of agricultural performance then acquires critical importance both from the standpoint of meeting burgeoning demographic demands and laying the foundations for sustainable industrialization. With respect to the former, recent FAO estimates of potential population supporting capacities (see Table 4) indicate that the Indian sub-continent is the only region that has exceeded its "potential" capacity (at the 1975 farm technology), and this situation will likely persist through the year 2000 even if technology shifts to the intermediate level [Dudal, et. al, 1984].

Africa as a whole will not reach its carrying capacity at the prevailing technological level even by the year 2000. And yet, Sub-Saharan Africa is probably the only region to suffer deteriorating living conditions among a significant sector of its population as partly manifested in its vulnerability to recurrent famines, triggered but not entirely caused by recurrent droughts. The methods and the data base employed to construct the aggregate FAO estimates have been criticized. Another criticism is that they do not take full account of intra-regional variations in population/land ratios or the pressure-induced degradation of the land that often accompanies population pressures and natural calamities [Ferraro, et al., 1982]. The breakdowns by country show the incongruity between the distribution of arable land and population among countries with much of eastern Africa (and Nigeria) far exceeding the potential capacity in 1982 [Ho, 1984]. The relative neglect of food agriculture by African governments in favor of cash crops, the high cost of new settlements, and the slow process of technological diffusion all suggest that there are few short-run policy options.

How many in the Third World are undernourished and hungry because they are too poor? Following the great

TABLE 4

POPULATION RATIOS IN DEVELOPING REGIONS

Level of Inputs*	Africa (a)	S. West Asia	South America	Central America	S. E. Asia	Average
	Potential/Present Population Ratios (1975)					
Low	3.0	0.8	5.9	1.6	1.1	2.0
Intermediate	11.6	1.3	23.9	4.2	3.0	6.9
High	33.9	2.0	57.2	11.5	5.1	16.6
	Potential/Projected Population Ratios (2000)					
Low	1.6	0.7	3.5	1.4	1.1	1.6
Intermediate	5.8	0.9	13.3	2.6	2.3	4.2
High	16.5	1.2	31.5	6.0	3.3	9.3

Sources & Notes: Dudal, et al. [1984], Table 7.

(a) Excludes South Africa.

* Low-Input Management Level (current mixture of crops and cultivators; no use of fertilizers, chemicals or conservation measures; manual labor with hand tools).
Intermediate-Input Management Level (half optimum mixture of crops with improved varieties; some use of advanced chemical technology; animal traction with improved implements).
High-Input Management Level (optimum crop mix and varieties; use of advanced chemical technology; complete conservation and mechanization).

TABLE 5

SIZE OF POPULATION WITH ENERGY DEFICIENT DIETS

1980

		Population with Energy Deficient Diets			
		Below 90% of FAO/WHO Requirement		Below 80% of FAO/WHO Requirement	
Region	(Number)	Share of Population (Percent)	Number of People (Million)	Share of Population (Percent)	Number of People (Million)
All Countries	(90)	34	724	16	335
Low-Income[a]	(32)	45	604	21	277
Middle-Income	(58)	15	120	7	58
Africa	(39)	42	152	24	86
Far East	(14)	40	494	17	210
L. America	(2)	13	46	6	19
Near East	(13)	16	32	10	20

Source: Reutlinger [1984], Table 3. Excludes China.

[a] Per capita income below $600 (Kravis Dollar).

majority of nutritionists who see failure to meet dietary energy requirements (DER) as the real measure of acute poverty [Berg, 1973], the numbers of people who fail to meet the recommended DER are presented in Table 5. Moreover, since the DER -- for each age, sex and activity group -- is based on reference persons considered average by Western standards, they tend to overstate needs in LDCs for reasons ranging from climate to weight-to-height and intensity-of-work differences [Lipton, 1983a].

We define the M-poor as those persons meeting 80-90% of their DER while persons investing less than 80% of DER fail in the U-poor category regardless of efficiency losses attributable to excessive "worm load." In the developing countries (excluding China) nearly a quarter of a billion people ran the risk of moderate to severe undernutrition in 1980 (half of them, the ultra-poor, failing to meet the daily calorie requirements for minimally active life). Over 80 percent of the DER-poor live in the poorest countries (two-thirds in S/S.E. Asia and one-fifth in Africa). A closer look at the state of national calorie supply indicates, however, that this energy deficiency is such a small part of the total food supply of most nations (the deficit/supply ratio is only 5.6% in India, 2.0% in Indonesia, 1.2% in Pakistan, and 8.9% in Kenya) that it can be eliminated by small increases in growth accompanied with sustained redistributive policies which will ensure food security for all [Reutlinger, 1984]. These calculations underscore the fact that neither the supply of food nor its monetary costs constitute major constraints on meeting DER in LDCs.

For comparison, an estimate of poverty using a poverty line equal to the income per head accruing to the 45th percentile of the Indian population in 1975 [Ahluwalia et al. 1979] shows a poverty rate of 51%, 31%, and 13% for low-income, lower middle-income and upper middle-income LDCs, respectively. Applying these admittedly conservative rates to the 1982 population (Table 2), the total LDC population in poverty exceeded 900 million, or 1.4 billion with China included. According to the World Bank, poverty is projected to decline from roughly 780 million to 460 million during 1980-2000 based on an assumed "standard" decline in fertility. The same projection shows no change in the income share of the poorest 40% (around 14-15%) during the same period [WDR, 1984:83].

3.2 National Poverty

Differences in levels and structure (urban/rural, class-specific, ethnic-specific, etc.) of mass poverty across countries brings us yet closer to an appropriate level of aggregation. However, an investigation of national poverty is partly plagued with the familiar problems with income distribution data for LDCs including sample skewing, sample sensitivity of parameter estimates, and lack of sufficient time series data. The following discussions are, therefore, illustrative. Table 6 presents four measures of poverty (head-count ratio) and inequality which, broadly interpreted, produce comparable results. The larger LDCs (with population over 25 million in 1982), accounting for over 80 percent of the population, are selected as illustrative examples.

Applying the admittedly low Indian poverty line cited above, Ahluwalia et al. give estimates of the 1975 national poverty rates which range from some two-thirds of the population in the poorest countries (Ethiopia, Bangladesh, Burma) to less than one-sixth in the middle-income LDCs (Argentina, South Korea, Iran, Turkey). This procedure clearly tends to underestimate the M-poor in the richer LDCs by applying a uniformly low standard regardless of differences in cost of living and norms of relative poverty. The ordinal ranking of the poverty rates, nonetheless, corresponds fairly well with the percentage daily calorie requirements met as shown in the last column.

The incidence of poverty is of course clearly a joint product of income per head and the size distribution of national income (as the comparison between Indonesia and Egypt or between S. Korea and Colombia illustrates). To establish the degree of correlation between poverty and inequality, we calculated two alternative measures of inequality: Borda scores of relative inequality (sum of the rank-order of a country in each quintile) and the ratio of income accruing to the richest 10% and the bottom 40% of households for countries with requisite data (mostly for 1965-77). Both measures provide consistent ordinal rankings that turned out to be almost identical -- South Asia and South Korea are the most egalitarian while parts of Latin America (Colombia, Mexico and Brazil) and South Africa are the least egalitarian. Similar exercises by Sen [1980] add a few smaller LDCs to this sample: Taiwan, Sri

Lanka and Yugoslavia in the former category, and Honduras, Peru, Malaysia and Venezuela in the latter.

Three points are worth noting at this juncture. First, the incidence of mass poverty is the highest in the poorest LDCs largely due to low national income rather than its gross maldistribution among households. Second, income inequality becomes an important factor in the incidence of absolute poverty in the richer LDCs. In light of the much questioned Kuznets hypothesis of an inverted-U relationship between inequality and level of per capita income, and the flimsy evidence that inequality has grown worse in some countries (Brazil, Mexico in the 1960s, and India during 1954-64), the importance of development 'style' (employment-orientation, basic needs-orientation, etc.) looms large in determining the human costs of the early stages of industrialization [Ahluwalia and Chenery, 1974; Fields, 1980]. And third, the sectoral differentials in poverty deserve special attention since absolute poverty (and its increase in some countries like Bangladesh and Malaysia, for example) is concentrated in rural areas [Griffin, 1978:123; Griffin and Rahman, 1976].

The last point is particularly well illustrated by the Latin American evidence for the period around 1970 (Table 7). CEPAL established normative poverty and destitution lines by sector/region (metropolitan, rural, urban, and national) for each country in the terms of the annual per capita budgets needed to meet prescribed baskets of basic needs [Altimir, 1981:73]. The evidence, which should be treated as illustrative, underscores the significant differentials in the incidence of poverty and destitution between rural and urban areas. It also shows a smaller proportion of the ultra-poor (i.e. DL/PL) in the urban areas than in the rural areas -- the bulk of the destitute population (consisting of nearly half of the households in Honduras and a quarter in both Brazil and Peru) resides in rural areas [Altimir, 1981].

Urban poverty affected more than one-third of the households in some countries (Brazil, Colombia and Honduras) while rural poverty existed in seven out of ten households in Brazil, Honduras and Peru. Roughly 40% of the households in Latin America were poor in 1970 with incidence of poverty in excess of 60% in rural areas (half of

TABLE 6

POVERTY AND INEQUALITY IN LARGE LDCs

	GNP Per Capita		Poverty Rate	Inequality		% Calorie
Income Class	82 $[c]	80 ICP[b]	(1975)	Borda Scores	Top10%/ Bot. 40%	Met (1981)
Low-Income						
Bangladesh	140	432	64	8	1.5	84
Ethiopia	140	377	68	--	--	76
Burma	190	359	65	--	--	113
Zaire	190	296	53	--	--	94
India	260	498	46	15	2.1	86
China	310	1,135	--	--	--	107
Pakistan	380	663	43	4	1.3	106
Viet Nam	--	--	--	--	--	90
Middle-Income						
Indonesia	580	734	59	23	2.4	110
Egypt	690	1,177	20	25	2.2[a]	116
Thailand	790	1,181	32	26	2.2	105
Philippines	820	1,022	22	21	2.7	116
Nigeria	860	1,476	35	--	--	91
Turkey	1,370	2,069	14	44	3.5	122
Colombia	1,460	1,882	19	49	4.4[a]	108
S. Korea	1,910	2,007	8	14	1.6	126
Brazil	2,240	2,152	15	58	7.2	107
Mexico	2,270	2,547	14	49	4.1	121
Argentina	2,520	3,209	5	32	2.5	125
S. Africa	2,670	2,354	--	57	6.1[a]	118
Iran	--	1,796	13	40	3.1[a]	114

TABLE 6

POVERTY AND INEQUALITY IN LARGE LDCs

(Continued)

Sources: World Development Report 1984, Table 1, 24, 28.
S. Jain [1975].
[a]Data for urban households only.
Ahluwalia and Carter [1979], Table 11-1.
[b]Summers and Heston [1984]. 1980 International Comparison Project (ICP) estimates.
[c]1982 U. S. dollars (exchange-rate conversion).

TABLE 7

ESTIMATES OF THE INCIDENCE OF POVERTY IN LATIN AMERICA

CIRCA 1970

	Urban (%)		Rural (%)		National (%)		
Country	PL	DL	PL	DL	PL	DL	RPL
Argentina	5	1	19	1	8	1	28
Brazil	35	15	73	42	49	25	54
Colombia	38	14	54	23	45	18	48
Costa Rica	15	5	30	7	24	6	36
Chile	12	3	25	11	17	6	39
Honduras	40	15	75	57	65	45	58
Mexico	20	6	49	18	34	12	48
Peru	28	8	68	39	50	25	48
Uruguay	10	4	--	--	--	--	--
Venezuela	20	6	36	19	25	10	38
Latin America	26	10	62	34	40	19	--

Sources & Notes: Based on Altimir [1981], Table 2, and Altimir [1982], Table 12 and 15.

PL: Households below the country-specific poverty line.

DL: Households below the country-specific destitution line.

RPL: Households below the country-specific relative poverty line (i.e., income below half of the average).

whom are U-poor) and 26% in urban areas. When a measure of relative deprivation comparable to the one used in the United States in 1960 (half the median income) is applied, the incidence of relative poverty as shown in the last column is much more uniform than absolute poverty.

Putting the foregoing fragmented evidence in a broader perspective, the differences between the so-called Asian Gang of Four (South Korea, Taiwan, Hong Kong and Singapore) and the Latin American Gang of Four (Brazil, Colombia, Argentina and Mexico) are striking. There is substantially more poverty and inequality in the latter than in the former despite comparable achievements in overall rates of growth. Even when proper allowances are made for differences in size and trade strategy, the most striking difference appears to be the style of development.

Taiwan and South Korea carried out land reforms, especially during Japanese occupation [Cline, 1982], and all four pursued employment-oriented industrial expansion fueled by exports and accompanied by public policies designed to help the small farmer and businessman [Sen, 1980; Fields, 1980]. In the case of the Latin American group, inequality in land ownership is high; unduly capital-intensive industrialization is significant; and public intervention in favor of the poor is minimal [Pfefferman and Webb, 1983; Altimir, 1981; Garciarena, 1976]. While the poor may have benefitted from growth even in the face of rising inequality as is the case with Brazil, the experiences of others (Korea, Taiwan, Yugoslavia and Sri Lanka) suggest that certain development strategies do combine both growth and poverty reduction. It is not an immutable law of development that the economic plight of the poor has to get worse absolutely or even relatively before it gets better as per capita income passes certain thresholds.

IV. THE DEMOGRAPHY OF MASS POVERTY

The relationship between a country's population growth and its economy has received its share of theoretical controversy and also suffered from neglect periodically. To the classical economists, the Malthusian theory of real income-induced population growth coupled with technological pessimism constituted the cornerstone of their theory of accumulation and stagnation. Marx scornfully dethroned population as an independent variable in determining the pace of accumulation, although population growth admittedly helps augment the "reserve army of labor" along with technological progress and business cycles.

Modern "institution-free" growth models tend to be scale-neutral with steady-state macro theories underscoring the equality of labor force and output growth rates. In neoclassical models of distribution and employment, population size and structure are taken into account insofar as they affect various factor supplies (hence returns) with appropriate corrections made for "quality" or human capital [Rodgers, 1983; McNicoll, 1984]. Dualistic growth models introduce certain institutional features to bring in more directly the labor-augmenting role of population growth primarily as it affects migration behavior and the turning point into the world where neoclassical assumptions can be maintained. Segmentation theories add the influences of the social relations of production in mediating the population-production-income relationships.[3]

These issues are explored below with respect to both theory and the available evidence. The interactions between distributional processes and demographic processes are examined first using a broad conceptual framework. These demographic features which are linked with poverty (size, structure and economic activity) are subsequently reviewed.

4.1 Theories of Income Determination

An analysis of income distribution and economic welfare entails two major issues: linking income inequality with economic welfare, and explaining the process of income determination. Briefly put, the first issue has been dealt with in modern welfare economics in terms of the "equity versus efficiency" dichotomy: any increase in efficiency that raises the income of some, unambiguously raises society's welfare, so long as no one else is made worse-off in the process (i.e. Pareto improvement). This dichotomy, and the cost-benefit approach that is based on it, is valid only if people do not care about increasing inequality or if income changes are always distributionally-neutral -- conditions that are often unfulfilled [Rawls, 1971]. Distribution and welfare relationships are so intimately linked with social preferences (ideally expressed through a democratic political process) that the attempt to deal with efficiency while excluding equity is based on invalid assumptions [Robinson, 1975].

Concerning the second issue, much of the theoretical work within the traditions of Marxian political economy and Post-Keynesian/Ricardian economics focuses on the process of income determination among classes and how this process impinges on the composition of output, prices and business fluctuations. The issue of poverty analysis falls both in the realms of distribution within classes (such as among the various strata of the working class or the peasantry) and among classes.

Marxist theory uses the theoretical abstraction of 'mode of production' to pose the existence of certain classes (individuals occupying common positions in production and exchange) and the laws of motion of a particular mode, be it a feudal or capitalist mode. At a lower level of abstraction the question of the coexistence of various modes and historical-specific institutions are incorporated into the analysis of social formation, both at the global level and the national level, in order to isolate the process of transition from one dominant mode (feudal or independent economy) to another (capitalist or state socialist) or from one phase of a given mode into another. Certain classes gain the upper hand while others are gradually subsumed, and the social constraints within which individuals act are continually defined and redefined.

One's location within production/exchange relations plus various non-class attributes such as education, intelligence, and wealth are mediated by one's class positions, and help determine income level. The income level of an individual in a capitalist society, for example, reflects three major influences: productivity of labor, the cost of reproduction of the family including an historical/moral element, and the influence of privilege or discrimination. It is often argued that the strength of the Marxian paradigm lies in its focus on both structural causation (class differences in income) and individual characteristics (idiosyncratic differences in income), thereby subsuming the narrow range of questions posed by the other theories while broadening the scope of relevant explanations [Wright, 1979].

At the heart of the human capital and status attainment theories is their choice of the individual as the basic unit of analysis whose given characteristics (both ascriptive and achieved) determine the individual's market performance (such as occupational status), and hence income. In this orthodox paradigm, exchange relations (rather than relations in production) are emphasized; causes are conceived of as prior to effects (dependent vs. independent variables); and the assessment of the magnitude of disturbances (such as discrimination and market imperfections) in modifying the personal characteristics/income link are explored. While status attainment theory focuses on the relative importance of achieved versus ascribed factors (in a less formally developed framework) human capital theory has developed elaborate models which interlink such factors as time preferences, rates of return and age-earning profiles [Thurow, 1975; Wright, 1979; Mincer, 1970].

The implications of the three positions on the sources and reproduction of poverty may be summarized in the following terms. To a human capital theorist, an individual's poverty may be attributable to preference or to failure to allocate resources rationally or to overly stringent constraints (market imperfections and endowments). The study of the constraints or preferences (culture of poverty?) is outside the domain of the theory, however. Status attainment theory focuses on the ascription-oriented constraints that are taken as major factors in the incidence and duration of poverty. Marxian theories, on the other hand, emphasize differential influences which work along and across class lines although different individual responses within the same class or similar responses from different classes are acknowledged as secondary explanations. From this perspective poverty is viewed as both the cause and effect of the processes of social change.

4.2 Income Determination and Demographic Processes

Neither orthodox nor Marxist demographers have paid much attention to the interactions between income distribution and demographic processes in the course of development. What little we know is strong on correlation and weak on causation. The possible links between the two are schematically presented in Figure 1. Are people poor because they have too many children or do they have too many children because they are poor?

If we begin with the demography-to-income relation first, the following is a conventional description of temporal causality. Demographic characteristics of the household/ family (size and structure) are among the major determinants of individual characteristics, the others being social/ class background and endowments. Given factor "supply" characteristics -- quantity and quality -- market demand determines the level and structure of earnings [Kelley, 1980]. What is not marketed or marketable goes for self-consumption whose imputed value should be part of the household's full income (the other components being private and public transfers).[4]

The commonplace observation that household income and household size are positively correlated [Visaria, 1980; Lipton, 1983c] may capture the influences of overlapping generations, presence of non-family members, and stage of family cycle as it is reflected in age-earning profiles [Kuznets, 1976, 1980; Birdsall, 1980]. Size is also linked with structure. The age structure of the household affects labor force participation rates and intergenerational transfers. The sex composition of the household, including the gender of the household head, also entails important consequences especially for labor force participation and earnings.

The other side of the relationship, i.e. the income-to-demography effect, has a longer tradition as an object of inquiry. The mechanism may take this form: endowments (assets and human capital), transfers and home production determine total household income which in turn profoundly influences household demography. The level of lifetime household income and its distribution (among members, and between savings and consumption) affect desired household size through the non-linear "demand" for children, the complexity or degree of nucleation, and the rates of family formation and dissolution [Lipton, 1983c]. Income growth may have a threshold effect if it affects mortality long before it affects fertility [Kuznets, 1976; 1980]. Income

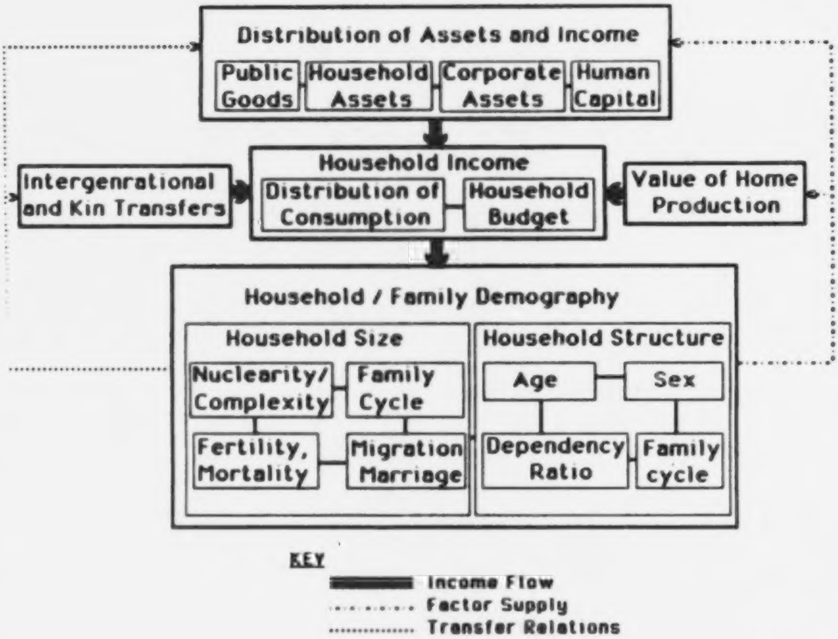
Distribution of Assets and Income
Public Goods
Household Assets
Corporate Assets
Human Capital
Household Income
Distribution of Consumption
Household Budget
Intergenrational and Kin Transfers
Value of Home Production
Household / Family Demography
Household Size
Nuclearity/ Complexity
Family Cycle
Fertility, Mortality
Migration Marriage
Household Structure
Age
Sex
Dependency Ratio
Family cycle
KEY
Income Flow
Factor Supply
Transfer Relations

Figure 1 Household demography and income determination

influences household structure through its link with the ages of the couple, and also through the dependency ratio (e.g. length of schooling). This is why the macro relationship between national income growth and population growth should be rooted in a theory of household demography since the household is an important non-market institution through which incomes are jointly generated, pooled, and distributed [Ben-Porath, 1982].

The World Bank [1984:53-54] poses the question of the demographic responses to poverty in the following way:

> If parents have many children in the hope of economic gain, the first step in reducing fertility is to relieve their poverty and uncertainty about their future. In this sense, the persistence of high fertility in a changing world is a symptom of lack of access: to health services, which would reduce the need for many births to insure against infant and child mortality; to education, which would raise parents' hopes for their children and would broaden women's outlook and opportunities; to social security and other forms of insurance for old age; to consumer goods and social opportunities that compete with childbearing; and to family planning services, which provide the means to limit births.

To what extent does the foregoing "And-the-Poor-Get-Children" view (i.e. economic determinism) of the demographic behavior of poor families conform with the known characteristics of mass poverty? The available evidence is reviewed next.

4.3 Household Demographics and Incidence of Poverty

The positive association between household size and household income, except perhaps at both extreme points of the income distribution spectrum, is the primary rationale for drawing several household "poverty lines" or for expressing a poverty line on a per capita basis -- the ideal denominator being consumer units or consumer equivalents. Lipton's [1983c] review of the evidence from LDCs on the size-poverty link reveals some interesting but not too well established patterns.

First, unlike the historical experience of the now-developed countries, big families in LDCs tend to be poor families on the basis of expenditure per consumer unit. Second, paradoxically and in conformity with the historical experience, the U-poor (the assetless, the female-headed, the landless, the remotely located, and the low-caste) tend to live in relatively small households. In view of early and universal marriage in LDCs, conditions of mortality (especially infant mortality) probably account for this outcome [Preston, 1975].

Third, the size enhancing variables, given the size-income profile, tend to shape household poverty: complexity (positive), swollen phases of family life cycle (positive but short-lived), and large numbers of surviving children into ages 3-8 (positive and long-lasting). If the life-cycle dimension is ignored, for example, young families in the early phases of their age-earning curves may be mistakenly lumped together with other groups suffering possibly from lifetime poverty.

Fourth, household size is positively related to status (occupational, asset ownership, caste, and male-headedness). Regardless of whether the direction of causation runs from size to income or vice versa (the conventional assumption), income (and its correlates such as education and achievement-orientation) has to surpass varying thresholds before it attains a significant impact on size.

Furthermore, household structure (age, sex and dependency) and size are linked dynamically: differences in structure between the poor and the non-poor influence their capacities to alter future household or family size (and earnings). Fertility/mortality differentials, working their way through demographic structure, may account for much of the observed gap between per-capita versus total household inequalities [Schultz, 1982].

Some examples of the distinct patterns of structure-income relations are worth noting [Lipton, 1983c; Visaria, 1980]. First, the brunt of female-specific incidence of poverty is closely related to high child/female ratios in female-headed households. When this observation is coupled with the high male/female ratio of richer urban groups, it explains why an increasingly female-dominated rural-to-urban migration has a normalizing effect on the urban sex ratio. Second, female-headed households are poorer (household expenditure) in spite of apparently favorable demographic features (smaller households, lower child/adult ratios, and greater age of household-head) since they face acute problems of mobility and discrimination.

Third, the poor in LDCs, more than their counterparts in more affluent societies, are likely to suffer from lifelong poverty although some are able to escape poverty by attaching themselves to a patron (god fathers, foster parents, and masters). For most, there is limited opportunity to smooth out the life-cycle consumption stream by borrowing/dissaving in early and later ages, and repaying/saving in the most productive years. With a high dependency burden, the U-poor often fail to ensure healthy development of children (partly attributable to their dependence on child labor) thereby reducing the next generation's chances of escaping lifelong poverty. Poor households do account for a disproportionate share of children in LDCs [Birdsall, 1980; WDR, 1984].

4.4 Labor and Incidence of Poverty

A profound impact of household demography (size and age/sex structure) on earnings is felt through the level of labor force participation rates and the degree of labor force attachment (hours worked). In conjunction with the range of employment opportunities and the quality of labor the household is able to deploy (i.e. productivity), labor supply determines the level as well as the stability of income.

In his valuable but causally agnostic survey of labor and poverty in those LDCs where the requisite data are available, Lipton [1983b] notes that a growing proportion of the poor (about half of the U-poor and less than half of the M-poor) are dependent on wage income. Their wage elasticity of labor supply is the lowest of all groups. When coupled with the excess supply of relatively unskilled labor, real wages have shown long-term stagnation as suggested by dual economy growth models.

Important differences in labor market behavior can be discerned within the ranks of the poor. Although need-based incentives to work must be the strongest, ultra-poor households show lower economic activity rates for a number of possible reasons: the demographic burden (highly mortality, high proportion of under-five-year-olds), undernutrition (frequent illness, disability, low productivity), and in some cases customary restrictions. Unemployment, in terms of both frequency and duration, is often the highest among the U-poor, and their inability to meet high job search costs often limits migration patterns to the short, the circulatory and the intermittent [Lipton, 1983c; Todaro, 1980].

Casual work, with low security of income and employment, also turns out to be positively correlated with incidence of poverty [Bromley and Gerry, 1979]. Falling between wage-labor and self-employment, casual labor is characterized by the highest involuntary unemployment rates among the rural poor (primarily smallholders and the landless) and the urban poor.

This last aspect of the labor-poverty relationship throws new light on some popular misconceptions. For example, the common belief that unemployment is a luxury for the better-off [Myrdal, 1968; Berry and Sabot, 1978] is based on a voluntaristic conception which ignores the costs of participation and the limited (and highly variable) labor demand facing the poorest. It also underscores the influence of differences in the status distribution of the labor force on the unexpectedly low unemployment rates reported in many LDCs. Countries with a large fraction of their workforce self-employed or categorized as unpaid family workers will report low unemployment rates even when open unemployment is high among the wage-earning labor force [Visaria, 1980].

The dynamics of the migration behavior of the poor (its forms, direction and regularities) are best viewed in the context of overall living standards and changes or transformations in productive structure [Standing, 1978; 1984]. The propensity to migrate to urban areas and to centers of extraction of primary commodities differs among various groups of rural households/families (independent peasants, share-croppers, landless laborers) for a given "pull" of employment opportunities. Across households, differences in mobility also exist on the basis of age, sex, martial status, and education selectivity [U.N., 1973] -- a phenomenon that reflects both the strategy of households for survival, and the differential social constraints on mobility across individuals and groups.

The regional pattern of migration of the poor suggests certain notable patterns [Standing, 1984]: rapid commercialization of agriculture constitutes a major push factor in Latin America (with predominantly female rural-to-urban migrants) and parts of Africa while such a push is weak in South Asia. The suction effect of rapid urban development is quite important in East Asia -- with little pressure on real wages -- while it is limited in both South Asia and Sub-Saharan Africa. The massive displacement of the rural poor in the face of landlessness that is attributable to land concentration (Latin America), demographic pressure and agricultural involution (Asia and parts of Africa), and natural or political calamities (South Asia and Africa) have all led to marginalization and stress migration (refugees and famine victims).

From the perspective of poverty analysis, what is significant is not so much the characteristics of 'individuals' who migrate, but the emergence of distinct strata that appear to be a standard feature of the urban labor market -- the so-called marginalized labor force conceived of by some as superfluous to the industrial economy and, therefore, constituting a non-competing group vis-a-vis the skilled proletariat [Obregon, 1974]. Others talk of the feminization of agriculture (most advanced in Africa and socialist Europe) as the corollary of the increasing "feminization" of rural poverty [Cernea, 1978; Deere, 1976; Meillassoux, 1983]. Whether understood in terms of marginalization, feminization or apartheidization of the peripheral labor force, this process is not yet well understood. Its proper conceptualization promises to advance our understanding of the dynamics of mass poverty going beyond the partial knowledge imparted by existing formulations (dualism between rural and urban sectors and within each, labor market segmentation, and human capital investment).[5]

What are we to make of these seemingly disjointed observations on the demographic responses to poverty and vice versa? Some of the theoretical explanations advanced by economic demographers are summarized below in the context of the "theory of demographic transition."

4.5 Demographic Transition and National Poverty

Recent surveys of the literature reveal consensus on the aggregate mutual effects of population growth and average living standards [Cassen, 1976; Birdsall, 1980; McNicoll, 1984]. In his classic survey of the literature on population and development, Cassen arrives at the standard conclusion that rapid population growth slows down the improvement of average standard of living although population growth per se does not cause mass poverty in any major way. Despite the allusion to the poor, Cassen devotes merely a page to income distribution effects.

Rodgers [1983] addresses the links among population growth, inequality and poverty in explicit but generalized terms. He lists the consequences of rapid population growth, paying no attention to initial size, to include: (1) lower real wages resulting from relatively fixed supply of non-labor inputs coupled with limited scope for factor substitution, (2) concentration of land ownership, (3) differential demographic growth among the lower classes causing inequality to rise in the face of limited upward mobility, (4) diffusion of limited social infrastructure expenditures among a larger number of the poor, and (5) lower investment in human capital by the poor who are experiencing rising dependency [Bilsborrow, 1976].

There are two counteracting tendencies that should be counterposed to the traditional Malthusian-type arguments. The first one is the savings/productivity effect of a healthier and vigorous labor force that may in fact succeed in raising income per capita [Simon, 1981; 1976]. The other one is the Boserup effect [1965; 1981] whereby communities respond to population pressure through innovation (rather than accommodation) in order to preserve customary living standards. The total effect of these three tendencies is, therefore, ambiguous except in the extreme cases where population growth exacerbates an economy suffering from prolonging stagnation for other reasons. It is similarly unclear that the effect of population growth on income inequality (presumed to be positive) is important [Rodgers, 1983]. But these surmises do not resolve satisfactorily the so-called Isolation Paradox: why does a poor family aspire to high achieved fertility when any gains are at least partially offset by negative externality effects of others' fertility? What is the relationship between individual rationality and social rationality?

The demographic history of countries and communities, with few exceptions, suggests certain long-term trends in the movements of fertility and mortality resulting in low population growth rates: pre-modern equilibrium (high mortality and fertility) or post-transition equilibrium (low mortality and fertility). The now orthodox "theory of demographic transition," based on liberal economics and modernization sociology, applies these lessons of history to the ongoing demographic changes in LDCs in the following admittedly speculative terms [Bulatao and Lee, 1983:785].

> In the premodern situation, marriage is early and, in most LDC settings, close to universal. Many couples desire large families, often larger than they are able to have. The early stages of modernization bring a gradual rise in marriage age, but also an increase in the supply of children, with the rise in natural fertility as breastfeeding becomes less common and with declines in infant and child mortality. At some point, supply begins to exceed fertility desires, which also begin to fall as children contribute less economically and as tastes change away from large families. Then it becomes relevant to consider fertility regulation. The costs of regulation have been declining simultaneously, not only because of family planning programs but also because of family secularization; eventually, a threshold is reached at which these costs are sufficiently low, and the desire to limit sufficiently strong, for substantial numbers to adopt fertility regulation. This complements the effects of marriage delay, and also accelerates the fall in regulation costs; in addition, demand continues to decline, as opportunity costs of childbearing rise late in the transition, until an eventual equilibrium is reached, with fertility at a new low level.

The foregoing description of the proximate determinants of low population growth rates during the pre- and post-transition regimes suggests certain theoretical implications concerning underlying causes, timing of changes for major variable, and relevance for LDCs undergoing demographic changes in a different historical setting. Since the literature on the subject is relatively large and intricate, those aspects concerning distributional factors are briefly raised.

Orthodox economic demography links household demographic behavior to macro-level outcomes by adopting, with some modifications, the utility-maximization-subject-to-constraints paradigm. The complete theoretical framework, presently in the process of formulation, has three major components: demand for surviving children, supply of surviving children, and the cost of fertility regulation (see Figure 2). Analogous to consumer demand theory for durable goods, the demand-for-children functions for surviving children are derived through an exercise of household utility (which is a function of child number, quality, and services) maximization subject to several constraints (price-of-time, expenditure relative to income, survival rates, etc.) [Schultz, 1981]. Preferences and traditionalism (e.g. patriarchy, preference for sons, gerentocracy) are not theorized in this framework.

The supply-of-children functions can also be theoretically derived in analogy with production functions: the potential mother's biological capacity can be affected by several factors (post-partum infecundity and health) with the level of inputs or capacity utilization capable of being varied (age at marriage, duration of marriage, frequency of sexual contacts, and infant mortality levels). This "notional" supply is then linked to the standard variables affecting demand to determine "effective" supply.

Given the "prices" (or expected private benefits and costs) of children, the rational couples' behavioral demand and supply functions are specified. The optimal level of achieved fertility for a prescribed desired number of children is attained through the equilibrating mechanism of the cost of "regulation." If, as shown in Figure 3, countries are at t_6 the extent to which unwanted fertility can be produced (aside from abstinence and infanticide) depends on the availability of safe and reasonably priced means of

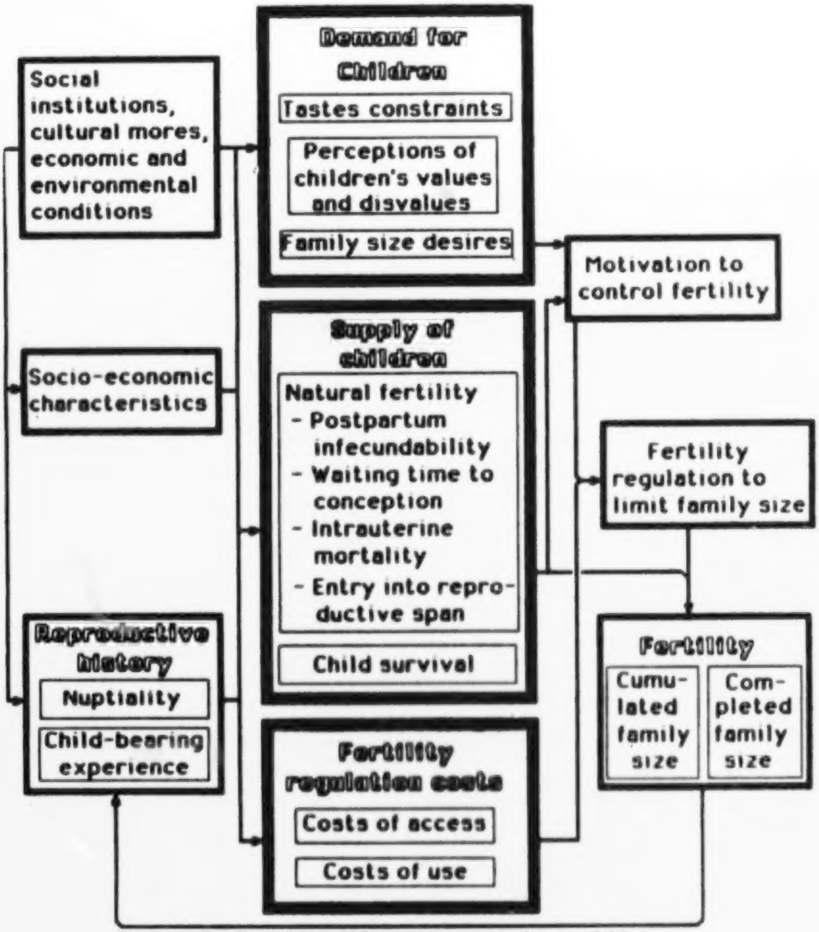
Social institutions, cultural mores, economic and environmental conditions
Demand for Children
Tastes constraints
Perceptions of children's values and disvalues
Family size desires
Motivation to control fertility
Socio-economic characteristics
Supply of children
Natural fertility
- Postpartum infecundability
- Waiting time to conception
- Intrauterine mortality
- Entry into reproductive span
Child survival
Fertility regulation to limit family size
Reproductive history
Nuptiality
Child-bearing experience
Fertility
Cumulated family size
Completed family size
Fertility regulation costs
Costs of access
Costs of use

Figure 2. One possible representation of the interrelationships among the basic components of the framework

Source: Bulatao and Lee [1983:10].

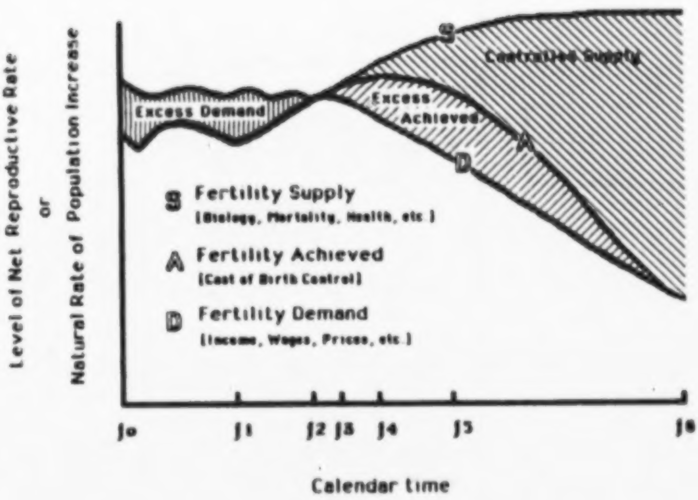

Figure 3 An Interpretation of Behavioral and Biological Factors Explaining Aggregative Features of the Demographic Transition.
Source: Schultz (1981: 125)

fertility control--the usual rationale for family planning programs [Easterlin, 1978].

In the demand-and-supply framework, one can identify important behavioral differences between the poor and the non-poor regardless of whether they live in LDCs or not. On the supply side, achieved fertility is affected by the behavior of the poor since relative to the non-poor they generally marry early (positive), breastfeed longer (negative), suffer from high infant and child mortality (negative) although infant mortality also shortens infecundity (positive), have low health-status (negative?), and can ill-afford the cost of fertility regulation (positive). On the demand side, desired family-size by the poor is affected by relatively high net benefits of children (positive), the negative pure income/wealth effect of poverty (curvilinear), and positive indirect income effects of income/wealth on educational aspirations (negative), and employment opportunities (negative).

Convential transition theory predicts that fertility declines as income increases based on the argument that the negative indirect income effects (education, opportunity costs of the wife's time, changes in the direction of intergenerational wealth flows in favor of children, and the like) will outweigh the positive pure income (utility of children) effects [Mueller and Short, 1983]. Achieved fertility will then decline with income partly because the means of fertility regulation (i.e. technology) are becoming easily accessible. The corresponding decline in mortality also reduces fertility as parents, with a lag that varies across cultures, recognize the less compelling need for replacement (insurance) fertility.

The economic theory of fertility, and the theory of demographic transition to which it is linked, has encountered a few criticisms despite its relative success in explaining many aspects of household demography in developed country settings. The first type of criticisms more or less accepts many of the premises of the theory while (1) emphasizing the importance of non-economic motivations in modifying income effects [Blake, 1968]; (2) questioning the wisdom of applying short-run static analysis to a long-term decision (consumption cum investment) that is likely to involve changes in the tastes and preferences themselves;

(3) pointing out the irrelevance of analyzing demand constraints when excess demand for children is a bigger problem in the poor LDCs; and (4) raising the importance of sequential decisions concerning fertility (i.e. parents may not know how many children they want at the beginning of the reproductive period).

The empirical evidence from LDCs, reviewed recently by Mueller and Short [1983], suggests that the total income effect (the positive pure income effect plus the negative indirect income effect) could go either way, and that the sources and consequences of income growth are important in the total income effect on the demand for children. Furthermore, the positive relationship between assets (land) and fertility suggests that income growth may have a positive effect on demand among the rural poor and a negative effect among the high-income urban population in LDCs.

The few studies that explicitly take into account the impact of income inequality on the demand for children show mixed results. The 'non-linearity effect' suggests that a lump-sum income redistribution could raise fertility if it goes to the U-poor but might lower it if it benefits the M-poor [Repetto, 1979]. On the other hand, the 'relative income effect' [Birdsall, 1977], suggests that the interdependence of preferences is likely to reduce the desired family size of the poor following income redistribution as status-differentiating expenditures and small-family norms are diffused much more rapidly. Enhancing the human capital of the poor and expanding employment opportunities for them obviously has a more lasting effect than periodic lump-sum income transfers.

The more fundamental critique of the above "Neo-Malthusian" approach is the Marxian one, many of whose arguments are shared by non-Marxists [see Caldwell, 1982, for example]. This approach underscores the inappropriateness of the concepts of "demand" and "supply" in the context of the family as a non-market institution; it questions the universality of individual "rationality" that is divorced from its historical and social context; it emphasizes the unity of the "laws" of the population and the laws of motion of a given mode of production; and with reference to LDCs, it links demographic regimes to the various forms of capitalist penetration of precapitalist and non-capitalist institutions. The central concept is reproduction of the labor force specific to each social class and each family [Mamdani, 1981; Seccombe, 1983; Meek, 1971]. Again, as with the income determination question, the Marxian approach attempts to subsume the narrow foci of other approaches by posing the question differently and in a sense endogenizing many of the variables taken as given by the competing approaches.

The Marxian approach identifies three aspects of production and reproduction which are fundamental; these are production and reproduction of labor power, of capital and of consumption. What is unique about the first production is that its site is the home rather than the market (capital) or the home and the market (consumption). As in the Neo-Malthusian framework, "producing" the labor force involves several steps: family formation through marriage, some idea of the net benefit of children, adjustment to the cultural conditions for procreation, and availability of the means of fertility regulation [Seccombe, 1983].

Since different modes of production (feudal, capitalist) have by assumption different fertility and household systems, the various classes exhibit demographic behavior which ensures the reproduction of mode-specific households and the labor supply necessary to reproduce both production and consumption in that mode. There is no abstract law of population that is applicable to all historical epochs and social systems. This means that the observed rapid population growth and the higher family-size desires of the peasantry and the semi-proletariat under peripheral capitalism are class-specific responses, "rational" only in the context of the specificity of the social realities in which they occur.

According to this analysis, the attempt to curb the migration of the dispossessed population [Standing, 1984] or to impose beyond-family-planning measures on the poor, whether in capitalist India or socialist China, is to ignore the underlying socio-economic conditions that produced such behavioral responses. While the Marxian formulations of the demographic question help us appreciate the significance of social classes and the dynamics of social change in shaping population variables, few works exist in this tradition that model the complex interrelations among the economy, household politics and demography.

V. LESSONS FOR DEVELOPMENT STRATEGY AND POLICY

This highly selective survey has touched on a broad array of issues which link mass poverty and its demographic characteristics. In addition it has shown the following to be fair generalizations: mass poverty is intimately tied to international inequality and a country's development style; there is an important link among inequality, absolute poverty, and desired family size; demographic transition is likely to be bumpy and prolonged for the poorest LDCs with the cost of readjustment falling disproportionately on the poor; and finally, mass poverty is not a necessary feature of economic development even at low income per capita. What types of development strategies and policies will help combat accommodation and facilitate escape from mass poverty?[6]

Several policy options, many of which are mutually reinforcing come to mind. They are not listed in any order of importance.

First, an employment-oriented industrialization strategy that integrates both agriculture and manufacturing is essential. An employment-oriented strategy is one that uses appropriate factor proportions for each sector and may not always favor labor-intensive techniques. The question of appropriate technical choice, credit policies, spatial concentration of industries, and price policies all emerge as interdependent.

Second, investment in human capital (education, health, training) should be geared to the needs of the majority of both rural and urban residents with particular attention paid to those of the poor who find it hardest to escape self-perpetuating poverty.

Third, asset (especially land and livestock) redistribution puts a significant dent in poverty in cases where both social justice and economic growth demand it. Asset redistributions such as land reforms have to be accompanied by supporting services (credit, extension services, roads and markets) in order to increase farm productivity.

Fourth, food security should be guaranteed for all with the aid of sensible policies (subsidy, price support, nutrition programs) that do not at the same time adversely affect the incentives of surplus-producing farmers.

Fifth, migration policies should not systematically discriminate against the rural poor who are attempting to escape poverty. The focus should instead be on mitigating the "push" factors rather than on their urban manifestations.

Sixth, family planning education and services should be provided in non-coercive settings so that those who wish to regulate fertility can do so safely and voluntarily.

By way of conclusion, it should be pointed out that the poor do not differ from the rest of society in their desire for better housing, income security, and educational opportunity for children. Contrary to the commonplace assertion, the poor generally put the blame on non-structural elements, but do become receptive to radical movements in the face of impending change and hoplessness [Portes, 1972].

Demographic behavior is certainly not a cause of mass poverty as the probable answer to the bottom-line counterfactual, "Would they have escaped poverty if they had fewer children?," suggests. Demographic behavior, especially when it does not reflect changing realities, tends to exacerbate mass poverty. Recurrent famines and plagues have receded into the dustbin of history for most of the world with the exception of South Asia and Sub-Saharan Africa; mass poverty is the next frontier. The 'relative' poor may always be with us, the 'absolute' poor need not be.

VI. NOTES

1. The poverty gap as a fraction of household disposable income for 1970 was 17.4% in Honduras, 11.8% in Peru, 7% in Brazil and 4.1% in Mexico [Altimir, 1981:74]. Poverty can be permanently eliminated not by a one-time or even periodic income transfers but by investments, and asset transfers favoring the poor.

2. Borda scores are indices calculated as the sum of the rank-order of a country in the group for each income class (quintile or decile) with the highest rank-value assigned to the poorest quintile or decile. High Borda scores, therefore, indicate high inequality relative to other members of the comparison group.

3. Attempts have recently been made to analyze the distribution of incomes within the framework of disaggregated simulation known as 'computable general equilibrium' models. They capture long-run relationships among production, distribution, consumption and investment while treating the demographic characteristics of labor supply as exogenous to the model [Dervis, et al., 1982].

4. "Full Income" also includes the imputed value of leisure (both voluntary, and involuntary in the case of unemployment). Such imputations are hard to make and even meaningless for non-market relations or in the context of significant involuntary underemployment/unemployment.

5. We have four major labor-market theories with respect to unskilled labor: Classical Subsistence Wage Theory, Neoclassical Theory, Efficiency Wage Theory (emphasizing the productivity-wage link), and Segmented Labor Market Theories.

6. The equilibrium-accommodation-escape formulation is taken from Galbraith [1979].

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POVERTY AND HOUSEHOLD RESPONSES IN RURAL BANGLADESH*

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I. INTRODUCTION

Poverty is difficult to define or identify. It is a cancer that tries to destroy human beings and yet they survive. Perhaps this survival in adversity best distinguishes the human race from other living beings on this planet. Survival? What about the reports of thousands dying of starvation in Africa? What about the stories from Haiti, Calcutta and elsewhere?

For those of us living in relative prosperity even in the very poor countries, it is difficult to conceptualize the true dimensions of everyday poverty -- the battles people fight to acquire a thousand calories or so just to survive. It is such endemic poverty that the better off fail to comprehend or understand. Yet for those in poverty every day is a struggle to survive. When the rules of the survival game change they face the inevitable unless help is forthcoming from the more fortunate. In his eloquently argued monograph, Sen [1981] calls this an entitlement collapse -- it drives people from the survival set to the starvation set.

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*Acknowledgments: To all the researchers who have traveled this route before me and to Berhanu Abegaz, the guest editor of this issue. I want to thank Jini Linkovich for the typing. This paper is dedicated to the absolute poor of the world.

Stories of deaths from starvation reflect such entitlement collapses. For the individual it means that their battle for survival has been lost. Until that moment of death, they have fought hard to survive.

To understand how to help the truly poor, we must first understand how they themselves fight for survival. Only if we comprehend the nature of responses to poverty can we develop an understanding of an appropriate policy response.

This paper can be seen as an ode to the survival struggle for the world's poor. I try to analyze how households respond to poverty so that they may best survive. Much of this analysis goes over ground covered by others whose work is reviewed and analyzed by Lipton [1983]. For me, this effort is a response to my own curiosity. What amazes me always, even more than starvation deaths occurring in a world of excess food, is the ability of the truly poor to survive in conditions of such severe adversity. In answering questions raised by my own curiosity, I will attempt to discover details which may help policy makers respond to the needs of the poor so that they never make the world's headlines.

II. POVERTY -- DEFINITION AND BACKGROUND

The definition of poverty should include the command over survival enhancing resources. Sen [1981] eloquently argues this point. In a rural population where unemployment is high, true command over resources is determined primarily by ownership of productive assets, especially agricultural land. Productive land provides direct access to the key survival-enhancing resource -- food. Rural poverty can be identified by landholding size in peasant economies. Their access to this basic necessity is indirect and not through market transactions which are subject to major swings in prices and wages. [For an eloquent exposition of this see Sen (1981).]

We view poor households as trying to reach a survival set "S" using all available resources and strategies at their disposal. Beyond that set "S" they may try to maximize long term benefits. The available strategies are discontinuous at "S" because once survival level is attained, more risk averse strategies may be dropped as higher yielding though riskier strategies are adopted. An example of this may be fertility. The very poor will try to ensure attainment of "S" by lowering their fertility. After a certain point this positive association may be reversed as household maximizes long-term goals which may necessitate the diversion of resources from basic consumption to investment (e.g., accumulation of human capital). Another example may be labor force participation by women and children. The very poor have to use every resource to survive. Women and children are drafted into the process. Beyond the basic attainment of the survival set "S," children may be allowed to attend school, women may remain at home if that is the social norm. Overall we may see an initial decline in crude labor force participation rates with increased landholding. However, as women in wealthier households may have acquired more human capital skills and are more valuable in the labor market, the labor force participation rates may eventually increase.

This paper analyzes the household response of the poor in Bangladesh, which the World Bank [1984] lists as the world's second poorest country with a per capita income of $140 and a life expectancy at birth of 48 years. These international comparisons are strictly speaking rather limited as they do not truly represent welfare differences [see Kravis, Heston and Summers, 1982]. But despite the inadequacies of international comparisons, there is little doubt that Bangladesh is among the poorest countries in the world, and any study of the poorest segments of the Bangladeshi population would effectively be a study of the poorest segments of the world's population.

According to the population census of 1981 [Bangladesh Bureau of Statistics, 1984] the rural population density is about 700 per square kilometer. Such population densities have led elsewhere to "push" type out-migration from rural areas to urban areas. Yet in Bangladesh, rural to urban migration is low and with only 16 percent of the population being urban, it remains among the least urbanized societies in the world. To understand this apparent contradiction one needs to analyze the household responses of the poor.

The analysis will use data from the Rural Poverty Survey of Bangladesh carried out by the Bangladesh Institute for Development Studies. This survey is described in detail in Faruqee and Allauddin [1984]. The survey's mean landholding size is marginally higher than the mean from the agricultural census. By drawing its sample from four different regions of Bangladesh the survey incorporates whatever minor variation exists in Bangladesh which is otherwise a very homogeneous country. The sample survey can be treated as fairly representative.

As we will see the results are similar to those obtained by other researchers in Bangladesh and also correspond to findings elsewhere in South Asia (Lipton [1983] summarizes many of these). These results probably apply with equal validity to other parts of the world though that needs to be explored through careful empirical research.

III. EFFECTS OF POVERTY ON DEMOGRAPHIC AND SOCIAL INDICATORS

In a society such as rural Bangladesh where extended family relationships are commonly accepted, poorer households tend to be more nuclear. The reasons for this are varied. First, the need to survive drives these households to keep their fertility down even though their mortality is high. They have less ability to care for their older relatives. Second, they are unable to hire help. Khan et al. [1981], found that nuclear families were poorer. Our survey data reveals similar results as noted in Table 1.

We include the covariates of female child mortality to examine the validity of the hypothesis put forward by Chen, Haq and D'Souza [1981] that poorer households try to ensure survival of male offspring by allocating resources away from female children. If the hypothesis holds, we expect the values of these covariates to decline with wealth. At this stage we can say that if nuclear families are poorer then the hypothesis put forward by Chen et al. [1981], is valid. Our results also confirm those of Khan et al. [1981], who found that nuclear families had smaller landholdings.

To analyze carefully how these indicators vary with poverty we divided the sample into six groups by landholding size. In rural Bangladesh landholding can be used as a proxy for poverty because not only does it signify the main source of wealth in a traditional economy it also defines directness of access to food [for a discussion see Sen, 1981].

I identified in an earlier paper [Khan 1984b] the households in the 1.5 to 2.5 acre range as the poorest group which are self-sufficient in food resources (see Table 2). The indicators picked are the same as for Table 1 with the exception of household size. The relationship between household size and poverty summarized in Lipton [1983] seems to be corroborated.

Apart from some minor variations the general hypothesis that poor households are smaller in an effort to survive is borne out by the results presented in Table 3. The Chen et al. [1981] hypothesis that female child mortality in poorer households would be higher than the predicted mean from the life table for that population seems to hold. As households get wealthier they have enough resources for all their children and there is no need to discriminate against female children. As we would expect, wealthier households also have household heads with better education. The education of women is somewhat more ambiguous. If we consider two overlain trends the ambiguity is removed. First of all education is positively linked to wealth but this positive linkage is overlain with Islamic customs that keep women inside the house, shielded from other men. The very poor cannot afford to indulge in such customs as all members of the household have to be out ensuring the survival of the household. Increases in the education of the household head removes some of these barriers and women in those households are allowed to go to school longer.

To examine further our preliminary findings based on sample means it is important to test these hypotheses using more robust statistical techniques. The key demographic

TABLE 1

SOCIOECONOMIC VARIABLES BY TYPE OF FAMILY IN RURAL BANGLADESH

		Land Holding		Mother's Education		Household Head's Education		Covariate of Female Child Mortality*	
	N	Mean	S-D	Mean	S-D	Mean	S-D	Mean	S-D
Nuclear Families	379	1.02	1.56	0.54	1.49	2.26	3.06	110.70	145.51
Extended Families	421	2.97	4.55	1.31	2.49	2.95	3.75	89.69	143.97
All Families	800	2.05	3.60	0.95	2.11	2.62	3.45	99.65	144.99

*These covariates are calculated using a method proposed by Trussel and Preston (1982). Observed mortality by sex for each mother is divided by expected mortality by sex for children of the same average age from the underlying lifetable. We multiplied the quotient by a 100. If the result is a 100, then mortality is as predicted by the lifetable for that population. If it's less than 100, it means that the group is doing better than the lifetable prediction and vice versa.

Source: Calculated from Bangladesh Institute of Development Studies Rural Poverty Survey of 1976-77.

TABLE 2

DISTRIBUTION OF HOUSEHOLDS BY SIZE OF HOLDINGS

Group	Average Holdings	Number of Households
Pure Landless		143
Near Landless	0 to 0.5 acres	173
Very Small Holders	0.5 to 1.5 acres	190
Lowest Self-Sufficiency Level	1.5 to 2.5 acres	98
Medium	2.5 to 5.0 acres	121
Larger	5.0 acres and more	75

TABLE 3

SOCIOECONOMIC INDICATORS BY LANDHOLDING GROUP

Group	Household Size		Education of Household Head		Education of Mother		Covariate of Female Child Mortality*	
	Mean	S-D	Mean	S-D	Mean	S-D	Mean	S-D
1. Pure Landless	5.93	2.08	1.40	2.67	0.36	1.20	110.72	157.12
2. Near Landless	6.08	2.28	2.11	3.05	0.84	2.12	106.43	159.88
3. Very Small Holders	6.88	2.63	2.21	3.14	0.70	1.69	91.92	135.82
4. Lowest Self-Sufficiency Level	6.61	2.37	2.94	3.37	0.65	1.75	96.85	137.46
5. Medium Holders	8.09	2.51	4.04	3.85	1.46	2.48	92.71	139.42
6. Larger Holders	10.85	3.55	4.47	4.29	2.49	3.13	85.07	126.28

*These covariates are calculated according to the method described at the bottom of Table 1.

Source: Calculated from the Bangladesh Institute of Development Studies Poverty Survey, 1976-77.

response to poverty seems to be household size. We tested the linkages between household size and landholdings. Also tested was the linkage between landholdings and fertility. The second test was done including mother's education as an independent variable, since it has been demonstrated to have such a major impact on fertility. Note that the linkage between landholdings and total fertility reaches a maximum at about 1.4 acres. This is about the same level at which the nutritional self-sufficiency threshold is reached in Bangladesh [see Khan 1984a, 1984b]. This finding is in line with our original thesis that there is a discontinuity in behavior at the point where the survival set "S" is reached. We also tested the Caldwell [1976] hypothesis that larger families bring higher per capita benefits. The log of cereal-based caloric intake was used as the measure of well-being per capita. Once landholdings are controlled for there seems to be a negative relationship between per capita intake and household size. This is similar to the findings of Mahmud and McIntosh [1980]. This finding does not mean that the Caldwell model is invalid for Bangladesh. Larger households may have more young children which would reduce per capital caloric intake in view of their requirements. Indeed our results for fertility demonstrate that higher fertility is associated with larger landholdings. The latter variable is also associated with larger household size. All these results are shown in Table 4. As postulated in Lipton [1983] and in confirming findings elsewhere, there is an inverted U-shaped relationship between poverty and household size. At the higher income levels the downward trend is associated with a downward trend in fertility. In fact, as the fertility results show, this inverted U-shaped relationship is also mirrored in the association between poverty and fertility confirming the findings by Mahmud and McIntosh [1980]. The education of the mother has a negative impact on fertility as found elsewhere. But as we note in Table 5, education of mothers is also associated with poverty.

Elsewhere [Khan, 1984a, 1984c] I have shown that women's education has an important contribution in reducing the mortality of children and in improving the day-to-day health of their children as well as their own. Poverty not only affects mortality and morbidity directly but also indirectly working through its effect on women's education.

TABLE 4

THE LINKAGE BETWEEN POVERTY, HOUSEHOLD, SIZE, FERTILITY AND CALORIC INTAKE

	Beta	T Statistic
EQN. 1.		
Dependent Variable = Household Size		
Agricultural Land	.683*	9.96
Square of Agricultural Land	.202*	2.95
Adjusted R^2	.258	
EQN. 2.		
Dependent Variable = Total Fertility		
Agricultural Land	.347*	4.41
Square of Agricultural Land	-.252*	3.13
Mother's Education	-.204	5.61
Adjusted R^2	.025	
EQN. 3.		
Dependent Variable = Per Capita Log of Caloric Intake		
Agricultural Land	.171*	6.92
Household Size	-.871*	35.32
Adjusted R^2	.637	
N	800	

*Significant at 5%.

Source: Ordinary Least Square Regression using data from the Bangladesh Institute of Development Studies Poverty Survey, 1976-77.

TABLE 5

POVERTY AND WOMEN'S EDUCATION

	Beta	T Statistic
Dependent Variable = Education in Years		
Agricultural Land	.192*	2.78
Square of Agricultural Land	-.075	1.11
Household Head's Education	.490*	15.69
R^2	.289	
N	800	

*Significant at 5%.

Source: Ordinary Least Square Estimates from data in Bangladesh Institute of Development Studies Poverty Survey, 1976-77.

IV. POVERTY AND ECONOMIC WELFARE

The direct consequences of poverty on the welfare of the individual are quite easy to discern. First, let us examine the consequences of the demographic responses described in the previous section on welfare. Household size is negatively associated with absolute poverty -- this is due not only to lower fertility but also due to fewer relatives such as grandparents forming part of the household (also the higher mortality, the higher rate of widowhood or divorce, etc.). In societies such as Bangladesh where inter-generational arrangements substitute for official social security, this leads to abject suffering among the older members of poorer households. Systematic undernutrition and lifelong morbidity reduces their capacity for work even at earlier ages, and the aged need to be supported longer. This imposes a great cost on society and on their households. The latter are unable to bear the burden as demonstrated by our results on household size. The result is intense suffering, possibly systematic starvation among the older members of poor households.

The results we found in Table 3 showed excess female child mortality among poorer households. This is due in part to intra-household resource allocation [see Khan, 1984c]. Poverty not only increases morbidity and mortality among its victims, it does so even more so for those lower in the pecking order; in the case of Bangladesh this means women and female children. This is true of almost all poor rural households in South Asia, but observed mostly among the destitute.

Second, the inverted-U relationship between fertility and poverty implies that pauperization of the rural population will lead to lower total fertility. In Bangladesh continuing subdivision of land because of Islamic inheritance laws leads to continued pauperization among the poor. As Mahmud and McIntosh [1981] suggest, we may see a poverty-induced fertility decline in Bangladesh. Such a fertility decline should not be treated as a positive sign for future economic development, in fact quite the reverse. If economic growth does occur, the decline may indeed be reversed, unless the education of women expands at the same time.

Third, let us consider the effect of poverty on migration. I noted earlier that even with a rural population density of 700 per square kilometer, Bangladesh is only 16% urban. Such a rate of urbanization is surprisingly low compared with poverty-induced rapid rural-to-urban migration in Africa and many other parts of Asia. In an earlier paper [Khan, 1984b], I demonstrated that over 40% of the rural population of Bangladesh consume below their minimum nutrition levels on a systematic basis. Despite this startling level of absolute poverty there is a relatively low level of migration to urban areas. Why? Abject poverty of the kind found in rural Bangladesh reduces options. Their first priority is survival. This means that migration takes place where the returns are certain. Information channels available to the poor limit access to knowledge of more lucrative options. A natural aversion to taking risk, with survival at stake, keeps the poor on migratory routes closer to home even though they are less lucrative [for a discussion see Lipton, 1983]. Distress-induced mass migration, however, is only observed during great crises such as the famine of 1974.

Fourth, as we have already seen poverty reduces educational attainment. Able-bodied members of the household have to spend the time working to ensure survival. The poor thus have little opportunity to acquire the skills necessary to move to better paying non-agricultural occupations. Without land they are unlikely to find agriculture very lucrative. They are trapped at a low level of existence.

V. POLICIES AND CONCLUSIONS

Many societies pay lip service to the needs of the poor. The political volatility of the urban poor forces governments to take some action to help them; the rural poor tend to be ignored except for ad hoc programs during crises. Despite this, the poor manage to survive by adjusting their household behavior to ensure survival, albeit at a very low level.

Society pays a high price for this indirectly. Inefficient use of labor is the norm as risk averse workers stick to established migratory patterns which do not locate them in their most productive occupations. Even for those working, increased morbidity reduces their productivity at work leading to direct economic costs [see Khan, 1984a]. These direct and indirect economic costs to society are huge. Thus direct attempts by society to alleviate the conditions of the poor which on the surface seems to cost a lot may not be so expensive at all. They may even result in net economic benefits. Whatever the economic calculus, social and humanitarian concerns provide sufficient reason for intervention.

I would like to outline here some potential policies which would help the truly poor in rural Bangladesh. These policies may be viewed in two subcategories, short-run and long-run. I focus here on food but similar policies could deal with other issues.

The most common short-run policy is to subsidize food. However, a general foodstuff subsidy benefits both poor and non-poor. In fact, proportionately greater benefits accrue to the non-poor as their purchasing power is greater. One way around it has been to subsidize foodstuffs consumed by the poor -- inferior foods such as sorghum or cassava. But some evidence suggests that such subsidies cause these foods to be used as animal feed indirectly benefiting the wealthy. The Indonesian government tried to get around this problem by devising a food product that mixes cassava with rice, adds soya bean for protein and hot peppers to make it unpalatable for animals. While logically this is an excellent idea, tastes are another matter.

The issue of food price subsidy brings out the key issue of income shortfalls of the poor. The long term goal should be the generation of income-producing opportunities for the poor. Not only do increased opportunities lead to higher expected income but the bargaining power of the ultra poor is also enhanced. When there is one job for ten people, the situation is quite different from when there are nine jobs for every ten individuals. The tighter the labor market the more economic, political and social power there is for the poor. The question is how do we get there from here.

The key element behind expansion of employment opportunities in rural areas is growth in the farmers' marketed surplus which increases their cash incomes thus enabling them to purchase goods and services in rural areas. This spins off employment opportunities for weavers, barbers, tailors and so on. (These groups generally tend to be landless in South Asia.) It is possible that if income growth occurred only among wealthier farmers demand for rurally produced goods may not grow as they may have a preference for urban-produced goods. Growth in cash incomes of poorer farmers is likely to have the most dynamic effect. The long-run growth in agricultural production particularly by middle to low income farmers may be the key to eliminating the worst consequences of rural poverty. Policies that provide incentives to small farmers are an important element in the eventual elimination of rural poverty. The short-run policies to eliminate hunger among the poor involve targeted food subsidies, and in the long-run incentives to encourage production increases among the medium and small farmers are important. What of the intermediate run? To stimulate long-run growth along the lines indicated a good infrastructure needs to be in place. In many parts of the world a lot of work needs to be done. Historically, in Bangladesh, food-for-work programs have been important in the construction of rural roads and flood control embankments. An expansion of such a policy would create the necessary infrastructure for stimulating long-term growth. To allow the poor to make their own choices the payment should be the cash value of the food. The problem of stabilizing food prices to prevent an entitlement collapse of the poor should be tackled separately through selling in order to dampen a sudden price rise and vice versa in order to protect producer incentives.

I have argued elsewhere [Khan, 1984a] that the net benefits may outweigh the net costs of these programs. The Bangladesh government has already set in motion many of these programs with fairly substantial results particularly in increased production. Continuing and expanding these programs should be a key goal of society.

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CHILD FOSTERING AND HIGH FERTILITY INTERRELATIONSHIPS IN WEST AFRICA

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I. INTRODUCTION

Anthropologists have long observed the prevalence of the practice of child relocation or child fosterage in many West African societies [Cohen, 1969; Fiawoo, 1978; Fortes, 1949; Goody, 1973, 1975, 1978; Marris, 1961; Sinclair, 1972]. However, there has been little attempt to explore the demographic implications of this practice among these poor, predominantly rural and high fertility populations. Yet a practice that partly relieves parents of the burden of child rearing and maintenance, and that places the child in another geographic and environmental location, could prove to be a significant factor in the complex interrelationships among socio-cultural and demographic events. The purpose of this paper is to explore the relations between fertility and child fostering, defined here as the relocation or transfer of children from biological or natal homes to other homes where they are raised and cared for by surrogate parents. In other words, fostered children are those raised or reared by people other than their own parents.

Secondary data from four West African countries, Ghana, Nigeria, Liberia, and Sierra Leone, were analyzed in the original work (Isiugo-Abanihe, 1983). The report presented here is based mainly on the Ghanaian data, derived from the 1971 Supplementary Enquiry of the 1970 Census, and the Nigerian data which are parts of Project 2 of the 1973 Changing African Family Study in Western Nigeria. In addition to other information, these data sets contain mothers' responses to the basic questions on the number of children living at home, the number away from home and the number dead, all of which sum to the total number of live births to a woman. The analysis here is limited to women 15 - 34 years old in order to minimize the bias introduced by including older women whose children are more likely to be away for reasons other than fostering. It should be emphasized that these data are not primary data on child fostering, rather they give only indirect evidence and implications of the practice. So the results need to be corroborated by studies designed specifically to tap the main socio-cultural, economic and demographic ramifications of the practice.

II. PREVALENCE AND MOTIVATIONS OF CHILD FOSTERING

Although the practice of sending children away at various ages is reported in many parts of the world [Ainsworth, 1967, in Uganda; Kay, 1963; Keesing, 1970, in Oceania; Rawson and Gerggren, 1973, in Haiti; Sanford, 1975, in the western Caribbean], perhaps nowhere is it as institutionalized as in parts of West Africa. Fostering has been a valued traditional practice among many West African ethnic groups; the practice has probably become more prevalent or taken new dimensions as societies become more complex and diversified. What seems extraordinary in West African fostering is its prevalence and the very young age of children not living with natural parents or the early age at which children are boarded out. Furthermore, because fostering here is rooted in kinship arrangements, children are sent out not only in the event of some family crisis or when one or both natural parents cannot, for some reason, manage to bring them up. Rather, the sending out of children or the delegation of parental child raising functions is often practiced by both stable and unstable families, married and single mothers, healthy and handicapped parents, rural and urban homes, and wealthy and poor parents.

About one in three Ghanaian mothers 15 - 34 years old (one in five at 20 - 24 years), with at least one surviving child, reported a child living away from home. In Western Nigeria, about 24 percent of mothers aged 17 - 34 years (and 37% of all women) reported children away. The age pattern reveals rising proportions of children away as mother's age increases. Hence, while nearly 10 percent of Ghanaian mothers aged 15 - 19 years reported a child fostered out, about 47 percent of 30 - 34 year old mothers reported the same. The proporations of children away to mothers aged 17 - 24, 25 - 29 and 30 - 34 years are 17.5, 30.8 and 48.6 percent, respectively, in Western Nigeria. This pattern could be a function of the rising age of children with the age of mothers (i.e., older mothers reporting older children away), as well as the result of large family size or high parity. Data from Liberia and Sierra Leone also show high incidence of child fostering [Isiugo-Abanihe, 1983]. In fact, of the four data sets we analyzed, the practice seems most prevalent in Sierra Leone, where about 29 percent of children whose mothers were aged 15 - 19 years had been fostered out. That such young mothers send out their children to such an extent is revealing not only of the prevalence of the practice as a means of child rearing but also of the young age at which children start to leave natal homes.

About 10 percent of all Ghanaian children aged 10 years and under were not living with their natural parents (17 percent of boys and 21 percent of girls). Nearly 20 percent of children born in the urban areas, and 18 percent of those born in the countryside have been relocated. The share of female fosters is generally higher than that of males in both urban and rural areas, and tends to increase with age. The ratio of boys to girls in the general population 10 years and under is 100:100; among fosters 0 - 10 years old, the ratio is 100 boys to 123 girls; in rural and urban areas the ratios are 100:116 and 100:142, respectively. This apparent dominance of girls over boys among fosters has also been observed by anthropologist Fiawoo [1978].

Table 1 shows the percentage distribution of respondents (male and female) in the Nigerian survey who replied that they have non-biological children (that is, children other than natural ones) in their homes. The table also shows their relationship with these children and the reasons for fostering them in. About 35 percent of the respondents reported 'other children' living with them. Of these foster parents, about 54 percent have more than one of such 'other children' living with them (Table 1[a]).

Most fostering in West Africa takes place within the kinship framework because children are generally perceived as belonging not only to biological parents but also to the lineage or the kinship group. Hence, at various ages children are sent out to reside with relatives or exchanged among kinsmen who mutually share kinship obligations and assistance. Kinship fostering is largely a consequence of the need to reallocate resources within the extended family or kin group, ensuring maximum survival for the unit and strengthening kinship ties. As is evident in Table 1(b), uncles and aunts, grandparents and other relatives are of considerable importance in raising and maintaining their kin's children. Taking in other people's children is done naturally, and those with small families or those who are relatively better off are seen as the ones to foster in children more readily. About 98 percent of the Nigerian sample agreed that "an older brother should help his younger brothers' and sisters' children if the younger brothers and sisters are poorer." Indeed, the data clearly show that women in white collar jobs, and those who attained secondary school education or higher (the relatively better off families) fostered in children more than women in other occupational and educational categories [Isiugo-Abanihe, 1983].

Some kinship fostering also takes place as a result of the dissolution of the family by divorce, separation or death of a spouse. This type of crisis-induced fostering also occurs among children born out of wedlock, and as a result of repeated child loss, or in response to the fear of witchcraft, poison and reprisal by neighbors and ancestors. Whether these fears are real or imagined, crisis fostering is generally thought to improve the survivaal chance of children by removing them from the source of the crisis.

In Africa, children are an important part of the domestic labor force and are thus needed for the various household tasks and small services they perform [Caldwell, 1982]. Children, particularly females, therefore, may be fostered out to redistribute their domestic importance among kinsmen and between households with many and those with a few. About 9 percent of the foster parents in Western Nigeria said that other children were boarding in to help in household work. This figure probably understates the number of fosters in this category since many of those relocated for other reasons, especially schooling, also provide domestic services as compensation to their caretakers. Domestic fostering may have taken a new dimension in present-day urban areas of West Africa where working mothers take in children as domestic servants, maids and baby tenders, in exchange for their maintenance, training, and maybe token wages.

Most present-day child fostering is commonly thought to be associated with formal schooling as education is increasingly seen as the sure means of social mobility [Fiawoo, 1978; Goody, 1975; Sinclair, 1972]. Indeed more than 50 percent of the Nigerian foster parents responded that fosters moved in with them for schooling or education purposes (Table 1[c]). Children are boarded out with relatives who live close to schools or who are expected to provide formal education to younger ones, maybe as compensation for their own education. They are also sent to nonrelatives where there are few relatives living in close proximity to schools or where relatives are no longer willing to honor the kinship claims of distant kin.

Generally, however, people are obliged to help educate or take care of other people's children. According to Caldwell, such expenditure on relatives and even nonrelatives gives great pleasure to the spender or patron. "The emphasis was again and again on the growth of love and respect with this expenditure and the joy that this reaction brought to the spender" [Caldwell, 1982:26]. Besides, fostering children out for education is a form of investment which both natural parents and foster parents will reap in future. As long as the system of extended family obligations can be maintained, and as long as larger differentials exist between places (mainly rural-urban) and among individuals, schooling will continue to be the major

TABLE 1

FOSTER PARENTS BY NUMBER OF FOSTERS, RELATIONSHIP WITH FOSTERS AND REASONS FOR FOSTERING-IN CHILDREN WESTERN NIGERIA, 1973

	Male		Female		Both	
Responses	%	N	%	N	%	N
a) How many children who are not your own are now living with you?						
One other child	40.1	(222)	51.9	(255)	45.7	(477)
Two other children	30.5	(169)	25.9	(127)	28.3	(296)
Three other children	+29.4	(163)	22.2	(109)	26.0	(272)
TOTAL	100.0	(554)	100.0	(491	100.0	(1045)
b) Who are these children?						
Nephews/Nieces	38.1	(211)	33.6	(165)	36.0	(376)
Grandchildren	9.7	(54)	16.7	(82)	13.0	(136)
Other relatives	31.2	(173)	30.8	(151)	31.0	(324)
Both rel. and non-rel.	10.1	(56)	7.9	(39)	9.1	(95)
Only non-relatives	9.4	(52)	10.2	(50)	9.8	(102)
No Response	1.4	(8)	0.8	(4)	1.1	(12)
TOTAL	100.0	(554)	100.0	(491)	100.0	(1045)

TABLE 1

FOSTER PARENTS BY NUMBER OF FOSTERS, RELATIONSHIP WITH FOSTERS AND REASONS FOR FOSTERING-IN CHILDREN WESTERN NIGERIA, 1973

(Continued)

Responses	Male		Female		Both	
	%	N	%	N	%	N
c) Why are they staying with you?						
Education of relatives	49.8	(276)	45.0	(221)	47.6	(497)
Education of non-rel.	3.3	(18)	2.4	(12)	2.9	(30)
Training (Apprentices)	11.0	(61)	9.2	(45)	10.1	(106)
To care for grandchildren	7.2	(40)	13.7	(67)	10.2	(107)
To care for relatives	17.5	(97)	15.5	(76)	16.6	(173)
To care for non-rel	1.6	(9)	2.2	(11)	1.9	(20)
To help in household	7.2	(40)	10.6	(52)	8.8	(92)
Other reasons	2.3	(13)	1.4	(7)	1.9	(20)
TOTAL	100.0	(554)	100.0	(491)	100.0	(1045)

reason for modern-day child relocation, especially since education is now very highly esteemed and viewed as the most certain means of socioeconomic mobility.

Children are also sent out as wards to establish or strengthen social, economic or political alliances with friends, people of certain social status, and even strangers [Goody, 1978; Sinclair, 1972]. Wards may be boarded out also for discipline or to learn a trade or receive some training. Again, the motivation for this type of fostering is partly social mobility, and it is commonly believed that wards or children raised under the supervision of surrogate parents are more progressive than those raised by their own parents.

Whatever the motivation for boarding a child out, it should be recognized that the practice, by shifting children to others also shifts child rearing costs and frees a woman to engage in other activities. A woman with ten children, for instance, while achieving prestige and recognition in most traditional West African societies, does not necessarily raise all those children herself. On the contrary, she may live with only a few, while others are brought up by surrogate parents. A pertinent issue here is whether this woman had ten children because she was hoping to board them out or whether her high fertility necessitated the fostering out of some children. Whichever is the case, attempts to answer these types of probing questions are needed for a better understanding and explanation of demographic events in developing societies.

III. CHILD FOSTERING AND FERTILITY

Fertility is generally high in West Africa, and there has been little evidence of fertility decline, except perhaps in the cities, especially among the relatively small number of educated elite. The Nigerian and Liberian data give a total fertility rate (TFR) of 7 children per woman, while TFR for Ghana and Sierra Leone is 6.7 and 6.5, respectively. These figures are generally identical with completed fertility. Because of the considerable socio-economic and emotional values placed on children, there is a characteristic apprehension in having a small family, and a profound fear of having no child at all. Caldwell has noted that in Nigeria, as in most of Africa, the marginal child is believed to be an advantage rather than a disadvantage. Only 20 percent of his sample said that the marginal child makes a family poorer. That larger families do not bring impoverishment is also held by most residents of cities, even amongst the educated white collar families [Caldwell, 1982:24].

That high fertility families do not necessarily suffer or lose status by their large family size is due, partly at least, to the sharing of obligations and responsibilities within the extended family or kin group. Child fostering is but one form of these kinship obligations and institutions which have evolved over the years to minimize the negative or undesirable consequences of prolific childbearing.

The economic theory of fertility based largely on household utility maximization fails to recognize fully the potency of these societal institutions and adaptations which are conducive for high fertility. Demand for children is particularly high in a society where children are highly valued for various economic as well as social benefits to both the parents and the community. In peasant societies of West Africa large family size continues to be desirable. In fact, it is possible here that parents' demand for children might outstrip their ability to produce them, that is, the supply of children, because of the operation of two opposing forces. Parents may want to have large families to maximize the benefits accruing from intergenerational wealth flow [Caldwell, 1982], while at the same time various environmental and biological factors place a limit on the ultimate reproductive capability of a woman and consequently on her achieved family size [Easterlin, 1975].

It would then appear that in peasant societies of Africa, the larger one's family is the better, especially for future well-being. In fact, Caldwell [1982:25] has suggested that "the economic well-being of the Nigerian family does not change very much with family size and hence the social advantages of eight children outweigh those of four and completely eclipse the horrors of no-, one- or two-child families." Because one's power and prestige are partly assessed by the number of grown children, particularly males, and their socio-economic positions, there is a profound interest in sending children out early, and to different places where their survival and future attainment are more likely, or appear to be.

Thus, in a society where couples bear many children, some of whom are fostered out, there may be no strong relationship between a couple's fertility and its economic ability to support a family of a given size. West African child fostering, much like a welfare mechanism, may be a way of rewarding or compensating those who keep the societal norm of having a large family [Fiawoo, 1978]. Rather than leave a couple to raise all its children, members of the extended family, other distant relatives and even non-relatives could ask for a child to live with; a couple could take the initiative to send out their children, thereby reducing the burden on household resources. Thus the exchange of children roughly operates in a supply and demand framework.

The demand for children to be fostered is a function of a number of factors pertaining to the foster parent or caretaker. Among them are the number of own children, desired family size, expected present and future benefit from fostered children, income or socio-economic status of foster parents, their stages in the life cycle, and the strength of their kinship ties. Families of high socio-economic status and those who maintain strong kinship ties, would tend to foster in the children of others more than poorer families or those with weak kinship ties. Also, where expected future benefits from fostered children are high (as in the case of grandparents who raise grandchildren and by so doing have a stake in their future prosperity, or a young man who fosters in his brother's sons whom he expects to train as his own children), the demand for children to be fostered may be high, often under the pretext of helping parents with large families.

The analysis shows that fostering in children has an inverse relationship with the fertility of receiving women, which is partly indicative of their substituting fosters for own children. For instance, an urban couple on whom rural relatives consistently 'dump' children may soon start thinking of cutting down on the number of their own children in order to take care of the obligations of the extended family which, in some cases, aided them in achieving their current socio-economic status. Substantial loss of status results when these upwardly mobile people have to provide for a large family made up of a high number of own children and children of relatives. This could be a strong motivation marking the onset of fertility limitation, given the cost and means of family planning. Also the availability of the children of relatives in the home (who might be treated or regarded as own children) could discourage a couple who have been having difficulties with child bearing, fetal loss, or early infant deaths, from further confinements.

The supply of fostered children, on the other hand, pertains to the biological parents, and is a function of the number of own children at a particular time, parental aspirations for a child and the expected future benefits from that child. Other factors which affect the supply of fosters include marital patterns and dissolution of marriages, mother's past experience with childhood mortality, her economic activity and alternative child care options, and noneconomic motivations such as kinship obligations.

Working parents, especially in urban areas, are more likely to send out their children where their work conflicts with child bearing and nursing. Parents of large families and those who have high aspirations for their children are also more likely to foster out children for rearing and some form of training if they cannot afford it themselves. They benefit by shifting parental obligations to different people while, at the same time, hoping to reap the advantages of the increased and differing opportunities derivable when children living out come to maturity or are independent. Fostered children could acquire education or learn a trade, which represents a substantial human capital formation or investment translatable into considerable intergenerational wealth flows from children to parents, grandparents and the extended family.

Writing on the significance of the practice in Arochukwu (ethnic Igbo in Nigeria) Okore [1977:323-324] notes that "within the family such mutual obligations are effective in minimizing the burden of many children and making the burden (if any) of raising children independent of one's own fertility." Indeed, one of the reasons for having large families could be to send some children away to relatives and thereby help to strengthen kinship ties or to show affection in a very tangible way. Thus a daughter might decide to have an additional child because her mother needs one. Furthermore, if it is true, as Goody describes among the Gonja in Ghana [Goody, 1973], that the first girl born to a union is given to the father's brother, or if parents could agree beforehand that the next child would be born for a certain relative [according to Schapera, 1941], then it is certain that the institution of child fostering affects a woman's fertility and the ultimate size of her family, even though the practice probably did not originate with this end in mind. It is, however, important to note that widespread fostering may discourage family planning. Because parents know beforehand that any surplus children can be sent out, there may be little need or urgency to curtail fertility. Thus, although these societies are essentially in a natural fertility regime, fostering could lead to the birth of excessively large numbers of children destined to be sent out to be raised.

Other supply factors that affect fertility through the practice of child fostering are age at marriage and duration of breastfeeding. Child fostering is conducive to early marriage because girls boarding out often marry earlier than would be the case had they remained with their parents. They tend to mature faster and are exposed to men earlier, either by early marriage or by early pregnancy out of wedlock. On the boys' part, the extended family not only finances their marriages but also encourages the cohabitation of married children with their parents; it also encourages the couple to have children early, and more rapidly once started, irrespective of their resources since the upbringing of children can always be shared.

As has been alluded to earlier, child fostering affects the duration of breastfeeding if children are sent out early, thereby interrupting an otherwise long period of breastfeeding. Traditional African societies the nursing period is usually long, often exceeding 2 years, and there is a taboo against sexual relations during the period of breastfeeding. The semen is believed to "spoil" the milk, and thus harm the child by causing diarrhea and vomiting. Thus if a couple wants to resume sexual relations they will send a nursing baby out, usually to the grandmother, to avoid the temptation of suckling the child. Physiologically speaking, the termination of breastfeeding simply because a woman is sexually active, or wants to become, and consequently the decision to send the child out, might lead to higher fertility by shortening the interval before the next birth. The availability of canned milk and baby formula has also reinforced this tendency since a fostered baby is readily fed these milk substitutes by a grandmother or other relatives.

In conclusion, where the practice of child fostering is widespread, parental resources might not adequately explain fertility levels. The economic costs of children to parents are lowered by the practice of fostering children out, while their potential value and benefit are high. The extended family, on which child fostering is buttressed, acts to alleviate the hardships of large family size. The delegation of parental roles means the sharing of child-rearing responsibilities, and the removal of the burdens and constraints of prolific childbearing. This also implies that the limitation of fertility by the elite group does not necessarily guarantee them a small family size. On the contrary, they 'inherit' large families because they constitute the role models to whom many related and unrelated parents want to send their children, some almost being 'dumped', to the displeasure of one or both partners.

It is hypothesized here that the institution of child fostering increases a woman's fertility, hence that of a society where the practice is widespread. The relationship could, however, go the other way. In other words, large family size results in sending children away. Also both relationships could take place concurrently. The hypothesized relations particularly hold in a controlled fertility setting. It is also applicable in a natural fertility situation where child fostering interrupts a long period of lactation; where couples aim at having many children, some of which are borne for one relative or another; and where couples (especially young ones) unconsciously attempt to replace children who are boarding out by becoming pregnant more frequently. Where fostering provides the apparent safety valve by which children of poorer folk are raised by relatives it is irrational for the less well-off to reduce their fertility, though there may still be health-related reasons. Obviously, however, this weakens the argument for pushing a nationwide family planning campaign aimed at limiting family size.

IV. ANALYSIS OF INTERRELATIONSHIPS BETWEEN FERTILITY AND FOSTERING

It is easy from the foregoing to see how high fertility may affect child fostering. But the reverse impact is also appreciable, that is, the practice of child fostering directly or indirectly leading to high fertility. Most likely, however, fertility and child fosterage are mutually reinforcing or jointly related in most societies where the practice is commonplace. Thus the true association between the two variables is better studied with a reciprocal model in which fostering and fertility are functions of each other and additional explanatory variables. Two-stage least squares (TSLS) regressions are used to analyze the relation by treating both child fostering and fertility as functions of each other. Only the analysis of the Ghana data is presented.

The general idea behind TSLS is that of altering the endogenous variables that appear in the equation to be estimated in such a way that they become uncorrelated with the disturbance or error term in that equation [Namboodiri et al., 1975].

Suppose we have a simple model:

$$E = a + B_1X_1 + B_2X_2 + B_3Y_1 + B_4Y_2 + U$$

where X_1, X_2 represent the endogenous variables, Y_1, Y_2 are the exogenous variables, U is the error term, and a and B are the parameters (intercept and slope, respectively). Since the endogenous variables are correlated with U, biased and inconsistent estimates are derived using a single-equation model like ordinary least squares (OLS) regression. However, if for each such troublesome variable X_i an alternative variable exists that is uncorrelated with the error term but still correlated with X_i, it is possible to get consistent estimates of the parameters. This new variable Z_i serves as the instrument for X_i (a good instrumental variable is one that is highly correlated with the regressor for which it is acting as an instrument and uncorrelated with the error term).

Thus because fertility and child fostering are hypothesized to be simultaneously related, a proper specification requires that at least one equation contains a higher ordered endogenous variable as an explanatory variable. The first stage then is to create instruments by regressing each endogenous variable on the set of the exogenous variables. In the second stage, these instruments or predicted values are used to obtain consistent estimates of the structural coefficients.

The use of TSLS leads to the identification problem. This refers to the possibility that there may be too many unknown parameters in one or more of the equations, so that it becomes impossible to estimate the magnitudes of the effects of the variables that appear in the equation [Namboodiri et al., 1975]. The most common way of identifying an equation is used here, that is, by assuming that certain parameters in the model are zero or that certain variables do not appear in a structural relationship. For the fertility equation, age at first marriage and person-room ratio are excluded from the set of regressors, the former because of substantial premarital births in the population, and the latter because the coefficient was not significant in the OLS regressions. Religious affiliation and age at first live birth are excluded in the child fostering equation because there appears to be no *a priori* reason why fostering should vary by religion; and age at first live birth introduces multicollinearity problems.

The two-stage least squares analysis of fertility and child fostering is carried out on Ghanaian mothers aged 15-34 years. The out fostering of children is measured by the ratio of observed to expected number of children away, which indicates whether a mother is boarding out fewer or more children than the average woman her age [see Isiugo-Abanihe, 1983, for the construction and more discussion of this index]. Fertility is measured here by the number of surviving children. Since a child has to survive before it is sent out, it is intuitively obvious why surviving children may not be a poor proxy for fertility.

The independent variables include a common set of socioeconomic variables that are hypothesized to influence both fertility and child out-fostering, such as maternal age, marital status, place of residence, educational attainment, work status, plus age at first live birth and religious affiliation in the fertility equation, and age at marriage and person-room ratio, in the child fostering equation. Dummies are constructed for categorical variables. The results of the analysis are presented in Table 2, together with the corresponding OLS coefficients. A more complete discussion of the hypothesized relationships and results is provided in the original work on which this report is based [Isiugo-Abanihe, 1983].

V. RESULTS

A. The Child Fostering Equation:

The number of surviving children is positively related to the fostering out of children, and the relationship is statistically significant. This suggests that women of high fertility do send out children more frequently. Since it is children who survive that are sent out, it follows that women with more children send out more. In a culture where fostering is common, it is on such women that more requests or demand for children are made. Furthermore, that the household size could put considerable pressure or strain on the available household resources is perhaps shown by the positive association between out-fostering of children and person-room ratio, though the relationship is not significant in the TSLS equation. In their study of child relocation in rural Haiti, Rawson and Berggren [1973] found that "where the number of persons (in the home) exceeded five, this was apparently perceived as placing an excessive burden on available resources of space, privacy and food." Consequently, children are sent out to be raised elsewhere.

The Nigerian data also show that women who sent out children generally have higher fertility than those who have not (results of the Nigerian segment of the analysis is not reported here, see Isiugo-Abanihe, 1983). At the same time, women who have fostered in children (receivers or foster parents) tend to have lower fertility, even when other variables are controlled. However, their fertility rises if they have also sent out children. That low fertility women are more likely to take in other children is perhaps related to the need for children to help around the home and the farm or for sheer company. Both sending out of children and receiving them are indicative of the reallocation of child services and upbringing between large families and small families.

We expected a positive relationship between maternal age and fostering out of children, and an inverse relationship with age at marriage. Indeed, the OLS analysis gives a positive association between age and out-fostering, but the relationship is reversed in TSLS regression. This means that when the effect of the number of children is controlled, younger mothers are more likely than older women to send out children. This could be partly the result of a closer attachment between young mothers and their own mothers, and their relative inexperience in child care, for which sending a child to its grandmother becomes very attractive. Besides, young mothers are more likely to have premarital babies fostered out in order to return to school, migrate or enter into a union. The negative relationship with age at first marriage perhaps underscores these speculations. Women who marry late are more stable, more experienced and better equipped to handle their children, while those in the early stages of their life cycle send out children more readily because of their tenuous status.

Currently being in a marital union decreases the practice of sending children out compared to being separated, divorced or widowed. However, women in polygynous unions tend to send out children more than those in monogamous marriages; the difference between the two groups is significant. Polygynously married women are probably more tradition-bound and more attached to their kinsmen. Also, competition among co-wives or rivalries among their children, and the inability of the husband of multiple wives to maintain adequately all his wives and children might lead to sending children out. Children in polygynous homes tend to be closer to their respective mothers who may want to send them to maternal relatives for more security and advancement. Further, women in polygynous marriages, are more likely to have been in previous unions or to have had babies out of wedlock. Such children are normally relocated when their mothers are about to move in with a new husband.

A priori, the direction of the relationship between rural-urban residence and fostering out of children is not obvious since people in the cities and those in the

TABLE 2

TSLS REGRESSIONS (WITH CORRESPONDING OLS), RATIO OF OBSERVED TO EXPECTED CHILDREN AWAY AND NUMBER OF SURVIVING CHILDREN AS DEPENDENT VARIABLES, EVER MARRIED WOMEN AGED 15 - 34 YEARS
GHANA 1971

Equation 1

Dependent variable: ratio of observed to expected children away.

	TSLS			OLS	
Explanatory Variable	Coefficient	Standardized Coefficient	T-Ratio	Coefficient	T-Ratio
Surviving Children	.1078	.0720	3.7420	.9798	5.030
Age	-.0209	-.0557	- .6908	.0510	14.925
Person/Room Ratio	.0226	.0286	.6258	.0246	5.550
Marital Status:					
Monogamy	-.6782	-.2023	-10.3856	-.6729	-25.059
Polygamy	-.5741	-.1642	-7.3872	-.5083	-19.970
Sep., div., wid.[r]	--			--	
Age of Marriage	-.0182	-.0487	-2.0304	-.0345	-11.000
Place of residence:					
Urban	.2935	.0805	15.1598	.3019	17.046
Rural[r]	--			--	

TABLE 2
(Continued)

Equation 1

Dependent variable: ratio of observed to expected children away.
(Continued)

Explanatory Variable	TSLS			OLS	
	Coefficient	Standardized Coefficient	T-Ratio	Coefficient	T-Ratio
Education:					
Primary & Middle	.0559	.0141	2.6378	.0405	1.974
Secondary +	-.1952	-.0146	-2.8258	-.1348	-1.963
No Schooling^r	--			--	
Work Status:					
Employee	.3848	.0461	6.9499	.4174	9.424
Self-employed	.0011	.0003	.0517	.0036	.204
Homemaker^r	--			--	
Constant	1.1470	0.0000	13.0896	1.0866	28.514
F - ratio	124.1260			120.3250	
R^2 adj.	.0631			.0865	

TABLE 2
(Continued)

Equation 2
Dependent variable: Number of surviving children.

Explanatory Variable	TSLS Coefficient	TSLS Standardized Coefficient	TSLS T-Ratio	OLS Coefficient	OLS T-Ratio
Fostering index	.1597	.4844	6.2874	.0608	9.671
Age	.1736	.5366	41.3029	.2080	166.619
Age at first live birth	-.1165	-.2034	-16.4234	-.1540	-69.520
Marital Status:					
Monogamy	1.7286	.5991	20.5600	.4196	23.070
Polygamy	1.4870	.4906	18.6323	.3751	19.444
sep., div., wid.[r]	--			--	
Place of residence:					
Urban	-.5459	-.1727	-11.6795	.0237	1.911
Rural[r]	--			--	
Education:					
Primary & Middle	-.0137	-.0040	-.3050	.0198	1.367
Secondary +	.2661	.0229	1.8123	-.2404	-5.144
No Schooling[r]	--			--	

TABLE 2
(Continued)

Equation 2
Dependent variable: Number of surviving children.
(Continued)

	TSLS			OLS	
Explanatory Variable	Coefficient	Standardized Coefficient	T-Ratio	Coefficient	T-Ratio
Religious Affiliations:					
Christian	.0482	.0169	1.0168	.0405	2.8456
Traditional	.1457	.0423	3.0150	.0077	.5375
Muslim^r	--			--	
Work Status:					
Employee	-.9724	-.1345	-9.7236	-.2056	-6.846
Self-employed	.0444	.0151	1.2139	.0840	7.123
Homemaker^r	--			--	
Constant	-.8801	0.0000	-8.6968	-.6854	-10.498
F - Ratio	194.7360			1309.2960	
R^2 adj.	.0985			.2369	
n = 23944					

countryside have different motivations for sending out children. However, the regression results show that urban Ghanaian women are more likely to send out their children than rural women, and the relationship is significant. It may be that many urban women do so because of problems of urban living, not the least of which is inadequate housing.

We hypothesized an inverse relationship between maternal education and child relocation. However, the results show that a fairly high level of education is necessary to achieve this. Hence, only women with some secondary education and above exhibit the expected negative association with out-fostering. In fact, those with some primary or middle school education are more likely to send out children than their sisters with no schooling at all. Better educated mothers probably adopt alternative child care methods, such as day care services or bringing in maids or even grandmothers to take care of their children in their homes. They are probably more doubtful or more concerned with the child care practices of surrogate mothers or foster parents, and their consequences on the health of their children.

Work status presents a rather interesting result. Homemakers are compared with working women, subdivided into employee and self-employed categories. Fostering out of children increases with work participation, though only the employees are significantly different. The self-employed are essentially identical with the homemakers in their practice of child relocation. Compared with the other women, the employees go out to work daily and probably work in more formal settings inconvenient for both occasional nursing and child tending. For them, sending children out is probably a convenient means of minimizing the conflict between work and child rearing; such conflicts are not faced by homemakers and self-employed women.

B. The Fertility Equation:

Equation 2 of Table 2 shows that the practice of fostering children out has a significant positive effect on fertility. Interpreting this result, however, is neither easy nor certain. It might be that women who send out children proceed to replace them by having another child, and perhaps doing so faster. The sending out of an infant or a still breastfeeding child may lead to earlier conception, consequently increasing the chances of pregnancy, given that a woman is sexually active. Sending children away, by reducing the costs of children to parents while increasing their future benefits, might cause parents to have more children than otherwise, especially if parents knew or planned that some children would be boarded out.

Age, of course, is positively related to fertility. That parity increases with age is expected in most populations. On the other hand, age at first live birth has an inverse association with fertility; in other words, women who started child-bearing late have lower fertility than those who started at younger ages.

Urban women have lower fertility than rural women, and the strength of the relationship is highly significant (however, the OLS coefficient is positive, though insignificant). This suggests a departure from natural fertility in the cities, where the incipient use of family planning services has probably initiated a transition in fertility relative to the continued high fertility in the rural areas.

Maternal education is inversely related with fertility in the OLS regression. However, this pattern does not hold up in TSLS where the most educated women show the highest fertility, albeit not statistically significant. Better nutrition and maternal and child health among better educated women partly account for this association. Also, since the measure here is the number of surviving children, the result could be due to differential infant mortality experience, mothers with no formal schooling having lost more children than the better-educated ones [Caldwell, 1979].

With regard to religious differences in fertility, the results indicate that women in traditional religions have higher fertility than Christians, who in turn have higher fertility than Muslims. These relations are fairly weak and almost unexpected. However, differential error in reporting, especially between Muslims and Christians, and other socio-cultural patterns, are probably reflected in these estimated parameters.

The effect of work status on fertility is indicative of a significantly lower fertility among employees relative to homemakers and self-employed women. Little differential in fertility exists between the homemakers and the self-employed. The lower fertility of employees, when other variables have been controlled, lends support to the proposition that women with higher time valuation have fewer children, probably because of high child-price effect and higher knowledge and use of contraceptives. On the other hand, the self-employed work mainly in the informal sector which is not necessarily incompatible with child bearing.

In sum, child out-fostering and fertility equations have been estimated using the two-stage least square technique, and the analysis suggests that the two variables mutually influence each other positively. The predictors of each are similar in some respects and different in others, but in most cases the relationships are significant, especially in the fertility equation. Although more consistent coefficients are derived using TSLS, OLS seems to give good estimates; only a few inconsistencies or reversal in the signs of coefficients are observed.

VI. DISCUSSION

The importance of this study lies in the inclusion of child fostering behavior among the socioeconomic factors that account for fertility differentials in a high fertility population. Demographers working on West Africa have failed to recognize the importance of the practice of child fostering and have commonly based their work on the Western notion of child rearing whereby children are generally raised by own parents in the nuclear family. Little have they realized that in some societies, to know the real or biological mother of a child, one would often have to ask both "Who bore you?" and "Who reared you?" [Goody, 1973:182]. Where fostering is prevalent, the natal home is but one of the possible homes for the child. Yet much demographic research in such societies tends to ignore this fact and usually equates the number of children born by a woman with her household or family size. Also, studies have commonly examined demographic events, such as childhood mortality, as correlates of parental characteristics with no regard that children away from natural parents are scarcely affected by such characteristics. Thus although the more conventional variables like age, education, occupation, marital status, etc. are important in themselves, certain societal institutions and practices should be accorded some importance in predicting demographic events.

The analyses reveal a positive mutual association between fertility and the practice of fostering out children in both Ghana and Nigeria. Holding other conditions constant, women with higher numbers of children foster out children more frequently. It would appear that among the responses made by parents with large families is to send some children elsewhere to be raised, and thus reduce the family to a more manageable size. Child fostering is probably an adaptive mechanism to relieve excessive burden on mothers or parents who maintain the societal norm regarding large family size. Although the positive effect of fertility on child out-fostering is intuitively satisfying, it is also possible that another aspect of the relationship goes from fostering out of children to fertility.

In fact, while fertility and child fostering seem to have the hypothesized mutual interaction, it is noteworthy that the impact of child fostering on fertility is more significant than the impact of fertility on child fostering. This partly suggests that societal acceptance of the practice of sending out children might be an important determinant of the number of children most women in such cultures would have. Certainly this underlines the importance of the extended family and kinship obligations. The awareness and maintenance of kinship networks mean that women able to have many children could shift the responsibility for their upbringing to others. The practice of delegating child rearing to others might, therefore, delay or discourage the acceptance of birth control or family planning services. On the other hand, in the process of socioeconomic development, people become less inclined to accept the children of others for rearing. The full impact of raising a family of certain size would then rest exclusively on the parents and they would begin to consider ways and means of regulating family size relative to their resources.

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UNDERDEVELOPMENT, URBAN GROWTH AND COLLECTIVE SOCIAL ACTION IN SAO PAULO, BRAZIL

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I. INTRODUCTION

Contemporary studies of urbanization in developing countries stand at the crossroads of two lines of thought [see Portes, 1978:35]. One strand, exemplified by the dependency and world-systems perspectives, emphasizes structural factors that limit or deform the development process in countries relegated to the periphery of the global economy [Gunder, 1969; de Janvry, 1981; dos Santos, 1970; Cardoso, 1972; Wallerstein, 1974]. The other line of reasoning takes these structural constraints more or less as given and proceeds to document the way poor people survive under the conditions of underdevelopment imposed on them [e.g., Lomnitz, 1977; Arizpe, 1982; Birbeck, 1979]. The first view privileges the economic and political structures that mold individual behavior according to systemic needs. The second, in contrast, focuses on individuals, or on social classes, as active forces that transform the social environment.

Which view the researcher accents (determinism, voluntarism) greatly affects the direction of inquiry. Perspectives that stress the law-like regularities of capital accumulation as the driving force of history tend to search out firm social structures that exist over time and whose transformations are independent of human will. On the other hand, an approach that admits the possibility that institutional arrangements can be changed, even superseded, by conscious social action draws attention to the decisive role of human initiative, and to the factors that permit or preclude the success of such action at a particular historical moment [see Gouldner, 1980: Chp. 3].

The term "structure," as used in the social sciences, covers a wide stretch of conceptual terrain. At the most general level, it refers to any enduring arrangement of interconnected elements that comprise a system. This definition conforms to its intuitive meaning as something that resists change or that changes slowly relative to other elements that form the whole. Yet, without further specification the concept remains empty of substantive content.

Narrowing the definitional focus to issues pertinent to present concerns, structure can refer to the processes and constraints that "de-randomize" costs and benefits, allocating them differentially and cumulatively among different classes and social groups, thereby yielding stratified hierarchies [Gouldner, 1980:101-2]. The concept of structure focuses on the ways in which outcomes of socioeconomic processes depend on locations within some larger whole, and on the ways in which these locations are themselves interconnected [Gouldner, 1980:103]. The "locations" in this sense refer to social classes, defined by their relationship to the organization of production (in the Marxian approach), or to socioeconomic strata, identified in terms of income or human capital endowments (the Weberian tradition).

In principle it is clear that the study of development must encompass both an understanding of social structure, which sets the parameters of behavior, as well as the factors that motivate the actions of individuals (or households) within structurally defined limitations. In the "real" world, of course, such conceptual distinctions have little meaning. Individual motivations, and the forces which retard or promote structural change, form a seamless web of interrelationships. This unity notwithstanding, the practical imperatives of the research process require that we artificially separate reality into different "dimensions" (i.e., structure and behavior) of study, at least when we collect data. This implies, in turn, that interpretations of the empirical results must strive to reconstitute a holistic approach by linking together the observations generated at each level of analysis.

Our objective here is to follow both a structural and a behavioral approach to the study of Sao Paulo, Brazil. The first level of analysis, rooted in the structural-determinist tradition, concerns the historical events, both internal and external to the national economy, that led to the founding and subsequent growth of the metropolitan area. Here we emphasize the evolution of the urban structure, and the way in which its transformation unequally affects the material interests of different classes of the city's population. Using the one-percent sample of the 1970 Brazilian census we document these unequal outcomes by analyzing disparities in employment, income and access to basic urban services (such as water and sewage facilities). Estimates of differential child mortality rates, also derived from census data, provide further empirical indicators of social class differences in the quality of life associated with Brazilian urban-industrial growth.

The second approach, consistent with the voluntarist perspective, documents some of the ways the poor in Sao Paulo behave under these constraints. For this purpose, we shift the analytical focus to household behavior, and to the initiatives undertaken by community organizations and unionized labor. We regard these actions as intrinsic to the system of relationships that define the urban complex. On the one hand they represent a response to the structural conditions (outlined in the first sections of the paper); on the other, they constitute a set of initiatives which themselves alter the city's socieconomic and political profile. Hence, our perspective endorses the view that individual behavior and social structure are part and parcel of the urban whole.

II. THE CONCENTRATION OF CAPITAL, MIGRATION AND URBAN GROWTH

The growth of metropolitan Sao Paulo can be traced to the coffee boom in the late nineteenth century. Until 1880 the bulk of Brazil's coffee was grown in the Paraiba Valley to the north and west of Rio de Janeiro. As the food lands in this region became exhausted, coffee production moved south to the state of Sao Paulo. The great fortunes accumulated from the sale of coffee on the profitable international market provided the capital for roads, railways and light industry. As the value of the export crop rose, and the areas under cultivation expanded through the use of imported European labor, banks and other credit institutions were established [Furtado, 1969]. In the early twentieth century Sao Paulo became one of the most advanced regions of the country as a consequence of these events. In the 1920s the state replaced Rio de Janeiro as the most important industrial center, and by the 1940s the state possessed the largest agglomeration of manufacturing capacity in Latin America [Dean, 1969:13].

Sao Paulo's ascendance as an industrial center did not follow a linear growth path. Instead, the historical antecedents of its emergence as Brazil's dominant metropolitan area involved a complex interaction of national and international factors. The interruption of trade with the advanced centers of the world economy, first in World War I and later during the depression and the Second World War, made it profitable to produce domestically what importers had been buying abroad. Light industries took hold, mainly in textiles, clothing, shoes and food processing [Baer, 1979].

The initial import substitution industrialization (ISI) was an unplanned response to events that were largely external to Brazil's economy. By the 1950s, however, ISI became a deliberate development policy. The theoretical underpinnings of ISI came from the writings of Raul Prebisch of the United Nations Economic Commission for Latin America (ECLA). Prebisch and his colleagues rejected the classical Ricardian theory of comparative advantage which held that specialization in the production of different commodities was mutually beneficial to countries linked by international trade. The increasingly unequal terms of trade between center and periphery which Prebisch documented meant that the international division of labor whereby Latin America exported raw materials in exchange for manufactured goods tended to widen rather than narrow intercountry income differentials. The solution, according to ECLA, was to achieve self-sufficiency in manufactured goods. To achieve this goal, ISI policy included: protective tariffs, preferences for firms importing capital goods for new industry, preferential import exchange rates for industrial raw materials and direct government participation in heavy industries, especially steel.

The growth in industrial production in the 1950s and 1960s stimulated by ISI policy favored the state of Sao Paulo. The metropolitan area, which by then had already emerged as a major economic center, continued to attract additional investment. External economies of scale made it economically rational in the initial stages of industrialization to locate in already growing areas. Energy, transport, communications and water supply - to cite a few examples - were cheaper in Sao Paulo than in the poorer, less industrialized regions of the country. The emergence of such "growth poles" tend to have cumulative effects in terms of the spatial distribution of capital investment [Hirschman, 1958:183]. In this way the regional economy of central and southern Brazil, especially Sao Paulo, advanced while the northeastern part of the country remained relatively underdeveloped.

2.1 The Concentration of Capital

By 1970, the state of Sao Paulo alone accounted for 35.6 percent of total domestic product and about 44 percent of capital accumulation [Camargo et al., 1978:19]. The 1970 data from the Anuario Estatistico (IBGE, 1975) provide additional measures of the degree to which industrial and finance capital had become spatially concentrated. According to this source, approximately 51 percent of Brazil's total capital investment in machinery and equipment took place in the city. Similarly, the metropolitan area represented 44 percent of all investments in transportation equipment. In the industrial sector, Sao Paulo's labor force earned 63.3 percent of total wages paid to skilled workers. The concentration of industrial production is further evidenced by the fact that, by 1970, the metropolitan area consumed half of Brazil's total supply of electricity (50.9

percent). Finally, data on the regional distribution of banking assets reflect the concentration of financial resources: commercial banks in Sao Paulo accounted for 45.7 percent of all deposits in the country and 48.7 percent of the value of commercial loans in Brazil.

2.2 Migration and Metropolitan Growth

As Sao Paulo became the locus of industrial production and the finance capital of Brazil, the city attracted population from rural areas of the state and from other regions of the country. By 1970 the metropolitan area held nearly eight million inhabitants (Table 1). Estimates for 1982 indicated a population of 13.7 million (IBGE, 1983:327).

The data presented in Table 1 illustrate the importance of migration to city growth. In 1970 migrants comprised 46.7 percent of Sao Paulo's total population (Panel A). As shown in Panel B, the majority had resided in the metropolitan area eleven years or more. The distribution of migrants by length of residence shows significant differences when we classify the data by place of origin. The rightmost column in panel C shows that about one quarter of the migrant flow to Sao Paulo originated in the Northeast (26.2 percent) and in other regions of the country (25.6 percent). Nearly half (48.2 percent) of the migrant population was born in surrounding areas of the State of Sao Paulo, the vast majority (87 percent) of whom were long-time city residents by 1970 (eleven years or more).

The large proportion of migrants from rural areas of the state of Sao Paulo is associated with the industrialization of the state's agricultural production and the cityward migration of surplus population displaced by labor-saving technology. The data for the state shown in Table 2 reflect the impact of mechanization on the demand for labor and on the social relations of production in countryside. In 1940 there were only 1,400 tractors in use. Thirty years later the number rose to 67,200 and the number of plows more than doubled. These changes brought about significant modifications in the size and composition of the labor force. The proportion of permanent employees and sharecroppers declined 56.8 percent while the proportion of temporary workers rose 168.9 percent.

TABLE 1

NATIVE AND MIGRANT POPULATION BY LENGTH OF RESIDENCE AND PLACE OF ORIGIN, SAO PAULO, 1970*

	Population	Percent
A. Components of GSP Pop.		
Migrants	3,721,500	46.6
Natives	3,696,100	47.0
Foreigners	508,200	6.4
Total	7,925,800	100.0
B. Migrants by Length of Residence		
0 - 5 Years	759,000	20.5
6 - 10 Years	526,700	14.3
11+ Years	2,410,400	65.2
Total	3,696,100	100.0
C. Migrants by Place of Origin and Length of Residence		
State of Sao Paulo	1,780,400	48.2%
0 - 5 Years		4.9
6 - 10 Years		8.1
11+ Years		87.0
Total		100.0
Northeast**	969,100	26.2%
0 - 5 Years		33.9
6 - 10 Years		21.5
11+ Years		44.6
Total		100.0
Other	946,600	25.6%
0 - 5 Years		36.2
6 - 10 Years		18.4
11+ Years		45.4
Total		100.0

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* Generated from one percent sample of 1970 census.

** Includes Coastal State north of Bahia, including Bahia, to Maranhao, including Maranhao.

TABLE 2

CHANGES IN AGRICULTURAL PRODUCTION, SAO PAULO 1940 - 1970, SELECTED INDICATORS

	Year				Percent Change
	1940	1950	1960	1970	1940 - 1970
A. Machinery*					
1. Tractors	1.4	3.8	21.2	67.2	+4700
2. Plows	168.1	224.9	272.5	401.6	+ 139
B. Forms of Labor					
3. Percent Permanent	54.6	34.3	24.4	19.3	- 56.8
4. Percent Sharecroppers	*	15.5	7.5	4.3	
5. Percent Temporary	7.4	10.1	23.1	19.9	+ 168.9
6. Percent Family	37.9	40.1	44.9	56.5	+ 49.1
7. Total Percent	100.0	100.0	100.0	100.0	--
8. Total N*	1,995	1,514	1,869	1,547	- 22.5

Source: Brandao Lopez, 1977

* In thousands

** In 1940 sharecroppers were classified as permanent laborers.

The transformation of agricultural production in Sao Paulo had a profound impact, not only on the spatial distribution of population, but also on the structure of social inequality in the city. The proletarianization of the rural labor force, for example, led to the emergence of a large contingent of landless laborers, known as boias-frias, who live in the urban area yet travel daily to work in the fields at harvest time. When employment falls in the off-season, workers re-enter the city's informal labor market. The boias-frias thus represent a new type of worker who is highly mobile between urban and rural labor markets. Although data on the number of boias-frias are fragmentary, there is a consensus that this type of temporary employment is increasing at the expense of resident workers and various forms of tenant farming [Goodman and Redclift, 1977].

In addition to the mechanization of production and changes in class structure, a shift took place in the kinds of crops grown. Sugar cane, oranges, cattle and (more recently) soy beans assumed increasing importance. Relative to the labor requirements' coffee, the new crops require far fewer workers per acre. These changes in land-use and production technology caused the overall number of people employed in the rural sector to fall 22.5 percent between 1940 and 1970 [Brandao Lopes, 1977]. Hence, the massive exodus of the rural population, and the consequent increase in the size of the metropolitan area, are the demographic consequences of complex changes in agrarian structure, the net effect of which is to reduce the quantity of labor absorbed in the rural area.

Cityward migration (whether inter- or intraregional) is not the only cause of city growth, however. In addition to the impact of the net movement of people is the rate of natural increase (births minus deaths) of the native population. In the case of Sao Paulo, natural increase accounted for approximately 38 percent of the overall growth in city size between 1960 and 1970 [Camargo et al., 1978:33]. As urban areas continue to grow, the rate of natural increase assumes ever greater weight relative to migration's contribution to city size [Preston, 1979].

2.3 Migration and Social Inequality

The influx of people from the State of Sao Paulo and from other regions of the country has also affected the city's socioeconomic composition. The impact of population movement can be seen by comparing the migrant and native population in the metropolitan area (MINTER, 1976). Generally speaking, migrants tend to be employed in low-paid, unstable and less skilled occupations relative to people born in the city. In 1970, for example, the average income for the native population was Cr$575. This was substantially above the comparable figure for migrants in the labor force (Cr$387).

With regard to employment patterns, the migrant labor force is primarily absorbed by the low-paid positions within two major job categories: construction and personal services. Personal services is especially important for women. Nearly half of female migrants to Sao Paulo (45.6 percent) are employed as domestic servants, compared to 22.6 percent for non-migrant women [MINTER, 1976]. Of the total population that received less than on minimum salary in construction and personal services, 19.1 percent were natives while 80.9 percent were migrants [MINTER, 1976].

Table 3, which presents the percentage of migrant and native heads of household by deciles of the income-earning population in Sao Paulo, shows the relationship between migration and the distribution of income within the metropolitan area. Migrants constitute about eight of every ten workers (81.4 percent) whose income falls in the bottom three deciles. The proportion of migrants within each strata declines as income rises. The ratio of the percent migrant to the percent native drops from 4.4 (deciles 1-3) to 1.2 (decile 10). In the top two deciles the proportion of migrants is around 65 percent.

The low income earned by migrant household heads places the domestic unit at an economic disadvantage relative to the native population. To offset inadequate earnings, migrant households generate supplemental income by placing a greater number of their members into the labor force (household strategies are discussed below). This pattern is evident when we examine labor force participation

TABLE 3

DISTRIBUTION OF MIGRANT AND NATIVE HEADS OF HOUSEHOLDS BY DECILES OF THE INCOME-EARNING POPULATION, SAO PAULO, 1970

Monthly Income of Hsld. Head (Deciles)	N	Percent Migrant	Percent Native	Total	%M/%N
1 - 3	5369	81.4	18.6	100	4.4
4	821	79.3	20.7	100	3.8
5	1705	77.2	22.8	100	3.4
6	1409	73.0	27.0	100	2.7
7	1907	69.6	30.4	100	2.3
8	1699	68.5	31.5	100	2.2
9	1003	64.7	35.3	100	1.8
10	1501	65.8	34.2	100	1.2

Source: One percent sample, 1970 census

rates by age and migratory status. Within the youngest age category (10-14 years) 9.9 percent of migrant youths work compared to 5.8 percent of natives. For those 15 to 19 years of age the labor force participation rates for migrants and natives are 62.1 percent and 50.0 percent, respectively. In the older age groups, however, the differential narrows considerably [MINTER, 1976].

These findings have implications at two different levels of analysis. The first concerns the urban economy itself. As the Ministry of Interior [MINTER, 1976] report concludes, industry sectors which rely on young and poorly paid workers draw their labor force primarily from the migrant population. Within the household, the income earned by youths makes a positive contribution to the sustenance of the domestic unit. Yet this short-run gain may have long-term consequences. Insofar as work detracts from further education, the result is to undermine future earning potential by reducing the accumulation of "human capital."

Intra and inter-state migration have thus played an important role in the demographic growth of the metropolitan area, and have influenced the degree and the character of the city's social inequality. Migration should not be emphasized to the exclusion of other considerations, however. Income levels and job opportunities in urban areas of developing countries are determined by a number of interrelated factors including population growth (through migration and natural increase), labor force participation and the type and rate of change in the urban economy. In the following section we turn to a brief review of the various attempts to conceptualize these relationships. This digression places the preceding observations into the context of the broader theoretical debate regarding labor absorption, and provides the conceptual background for subsequent analyses.

III. UNDERDEVELOPMENT, LABOR ABSORPTION AND INCOME

Conventional explanations of wage levels and employment are based on models of competitive labor markets. Firms are presumed to hire additional workers until marginal productivity equals the wage rate. Wages, in turn, are a function of the interplay of the demand and the supply of labor (which can vary by industry-specific skill requirements). In this view, the high incidence of poverty in Sao Paulo among the unskilled is largely the result of surplus workers (due to demographic increase), a condition that lowers the equilibrium price of labor. The problem of excess supply is exacerbated by public policies that set the wage above equilibrium, a factor that further stimulates in-migration to the urban area [see Todaro, 1981].

On the demand side, the creation of productive and better paid jobs is determined by the expansion of the modern, or capitalist sector of the economy. According to this dualist framework, proposed by W. Arthur Lewis [1954], development occurs via the transfer of surplus labor from the traditional rural subsistence sector to the urban industrial one. Both the labor transfer and urban employment growth are brought about by output expansion in urban industries. Lewis assumed that, in the initial phase of development, the level of wages in the modern sector would be fixed so as to be sufficiently higher than the alternative rural income in order to induce workers to migrate from their home areas to the city. The speed of modern sector employment creation is determined by the rate of capital accumulation and the reinvestment of these profits in expanded industrial production at constant capital-labor ratios. An increase in the total capital stock causes the total product curve of the modern sector to shift, which in turn induces a shift in the demand curve for labor. Lewis assumed that this process of growth and employment expansion continues until all surplus rural labor is absorbed in the urban industrial sector. From that point on, the labor supply curve becomes positively sloped, both urban wages and employment rise, and the balance of the economic activity shifts from rural agriculture to urban industry.

While Lewis's two-sector development model roughly conforms to the historical experience of economic growth in the West, the framework does not account for the realities of migration and underdevelopment in Sao Paulo or, for that matter, in most contemporary Third World countries. The assumption that the rate of labor transfer and employment creation in the urban sector is proportional to the rate of urban capital accumulation is especially troublesome. This critical assumption of constant technology is violated when profits are reinvested in more sophisticated labor-saving capital equipment, as is the case in Brazil [see Lluch, 1979]. The result is a growth in total aggregate output, yet, at the same time, total wages and employment remain unchanged, or fail to keep pace.

This observation raises a crucial question: Why is there a tendency to use labor-saving technology in developing countries where labor is abundant? Neoclassical economists blame the low labor absorption rate on price distortions. ISI development policies in the post-war period provided subsidies to domestic and foreign firms to invest in favored industries. At the same time, wages in industry were relatively high as a result of labor legislation in Brazil. Hence, the relative price of capital and labor was such as to stimulate the adoption of capital intensive production techniques [Cohen and Leff, 1967].

Writers in the dependency school find the answer in the technological dependence of peripheral economies. Contrary to conventional economic theory, this approach posits that the excess supply of labor in developing countries does not necessarily translate into an appropriate factor mix when the production technology is developed abroad (where labor is scarce and expensive). The kind of development fostered by transnational corporations, therefore, tends to favor labor-saving technology, at least in heavy manufacturing where high quality exports require the latest technology [Cardoso, 1972; dos Santos, 1970; Sunkel, 1973]. Capital intensive production, and low wages paid in the periphery, combine to increase the rate of capital accumulation beyond what can be achieved in the center (where labor is more scarce and far better organized to defend its interests).

Studies by economists of the United Nations Economic Commission for Latin America (ECLA) and by PREALC focus on the structural constraints to the expansion of labor demand in the modern sector, a phenomenon caused by the increasing cost of generating new industrial jobs. Despite the fact that in Latin America the gross investment coefficient was comparable to that in the United States at an earlier period in its history (1870 to 1900), the relative cost of job creation was not. That Latin America entered the process of industrialization quite late implies the advantage of having access to technologies which yield greater productivity without incurring the costs of research and development and technological obsolescence. But, by making more intensive use of capital than labor, the creation of jobs requires more capital per worker than it did in the past [Tokman, 1982; Garcia, 1982]. The rapid expansion in modern sector output does not, therefore, lead to a proportional rise in the amount of labor directly absorbed by modern enterprises (although a dynamic modern sector may induce job creation elsewhere in the economy).

Portes and Benton [1984] accepts the conclusion that the high cost of job creation may constrain the rate of employment expansion in the formal sector, yet he notes that other factors are also at work. When labor is abundant, the relatively high wage paid in formal employment provides an incentive for employers to make use of the informal sector. This incentive is bolstered by modern labor legislation which makes contractually hired workers more expensive and less subject to arbitrary dismissal. Labor unions impose further restrictions on the ability of employers to vary the size of the work force in response to market fluctuations. The increased cost and decreased managerial flexibility of contractually hired workers thus makes it rational for employers to draw on the highly elastic supply of informal labor. Employers directly hire on a casual basis and subcontract production or marketing to informal concerns. In Sao Paulo, however, small enterprises do not appear to be engaged in subcontracting arrangements with larger firms on the massive scale that has been observed in other cities [Souza, 1981, cited in Portes, 1984].

The main thrust of these arguments is not that employment in the modern sector has failed to grow. In Brazil, formal non-agricultural jobs rose at an annual rate of 4.4 percent between 1950 and 1980 [Garcia, 1982: Table 1]. The point, rather, is that the increase in job creation in Latin America's urban industrial sector has proceeded slowly despite high investment coefficients. Furthermore, the growth in the supply of labor has far outstripped the availability of formal sector positions. As Lluch [1979] has shown for Brazil, the supply of labor is increasing at a faster rate than the increase in productive and more highly remunerated employment. Contrary to the Lewis model, this combination implies that, should trends continue, the population will never be fully absorbed by the formal sector.

Others contend that the Brazilian economy is so structured that the perpetuation of low wages is not necessarily dysfuntional to the continued growth of capitalist production [de Janvry, 1981]. In "socially articulated" economies of the Center, in contrast, there is a necessary relation between production and consumption -- that is, between the derived demand for capital goods and the final demand for wage goods. In other words, the overall rate of profit in economies of the center depends on the long-run need for wages to rise. The tendency for wages to increase takes place through labor militancy, which is legitimized by social-democratic regimes, even though it may be in the short-run interest of individual capitalists to reduce labor costs.

In "socially disarticulated" economies of the periphery, on the other hand, there is no necessary relationship between the demand for capital and the demand for wage goods. Instead, the demand for wage goods, which is generated by returns to labor, are largely met by producers in the traditional sector. Hence, the capacity of the economy to expand does not depend on creating a broad-based home market through wage increases. The perpetuation of low wages does not, therefore, imply a structural constraint on expanded industrial production to the same extent that it does in the center economies. According to de Janvry [1981], "social disarticulation" is thus the objective condition that perpetuates low wage levels, and that permits the adoption of repressive labor policies.

The outcome of these processes is manifested by the distribution of income and occupations in Sao Paulo, and by the wage policies pursued at the national level. The empirical evidence on these issues is discussed in the following sections.

3.1 The Distribution of Income

The distribution of the economically active heads of households in Sao Paulo by level of income, shown in Table 4, is a telling indicator of the prevalence of poorly paid employment in the city. About one in every five workers (26.2 percent) earns less than the legally established minimum monthly salary (approximately U.S. $40). More than half of those in the labor force (57.6 percent) earn

TABLE 4

ECONOMICALLY ACTIVE HEADS OF HOUSEHOLDS BY MINIMUM SALARIES BY SEX, SAO PAULO, 1970

Minimum Salary[a]	Total	Male	Female
Less than 1	26.2	18.4	45.6
1 < 2	31.4	31.2	31.7
2 < 3	17.1	20.0	10.1
3 < 4	8.0	9.1	5.2
4 < 5	4.2	4.9	2.5
5 < 6	3.6	4.3	1.9
6+	9.5	12.1	3.0
Total	100.0	100.0	100.0
N*	31,166	22,199	8,967

Source: One percent sample, 1970 census

* In thousands

Note: [a] One minimum salary in 1970 was equivalent to about US$35.

less than two minimum wages. The breakdown by sex reveals a significant gender bias in the distribution of income. For example, nearly half of all female household heads (45.6) earn less than one minimum salary. A comparison of the overall distributions by sex in Table 4 shows that, relative to male workers, females are heavily concentrated in the lower income strata.

3.2 Occupational Distribution

We can further characterize the low-income population of the city of Sao Paulo by examining the occupational and sectoral distribution of heads of households who participate in the labor force. Data from the one percent sample of the 1970 census indicate that nearly half of all workers who fall in the lowest deciles of the income-earning population are concentrated in only three sectors of the urban economy: construction (19.3 percent); transformative industries, such as metallurgy, and electrical and transportation equipment (15.6 percent); and food processing, sales and distribution (13.6 percent).

For the most part those in the bottom three income deciles hold unskilled occupations within the three industry sectors noted above. Nearly half (48.7 percent) of all construction workers are stonemasons, and one in every three is a stonemason's assistant. Similarly, 36.7 percent of all those employed in "mechanical industries" are classified as unskilled workers. Other occupations that predominate among low-income earners include: itinerant food sellers; unskilled office helpers; retail sales clerks; drivers and delivery jobs.

3.3 Wage Policy and Real Income

In addition to the substantial proportion of the economically active population that earns less than one minimum salary, it is essential to note that the real value of the minimum wage changes over time. Following the military coup in 1964, a wage containment policy became a central component of the government's strategy to hold down inflation and attract foreign investment. The power of labor unions to act as effective bargaining agents, already undermined by the corporatist legacy of the Vargas period [see Erickson and Middlebrook, 1982], was further curtailed by legislative fiat, political repression and the occasional use of force. With organized labor under firm state control, salary levels were determined by a bureaucratic method based on an index of economic indicators.

The initial formula relied on a correction factor that determined the average rate of inflation during a previous period. To this was added a small increase pegged to the rise in productivity, plus a third variable to account for the rate of inflation anticipated in the subsequent twelve months. Particular aspects of the method of wage determination were changed in 1974 and again in 1979. It is sufficient here to note that the procedure was putatively intended to adjust the minimum wage so as to recover income eroded by inflation. In practice the components of the formula designed to adjust for inflation were deliberately understated during certain periods. As a consequence, the real value of the minimum wage in Sao Paulo fell by 24 percent between 1964 and 1974 [Wood, 1979: Table 1]. In the latter half of the decade (1975-1979), a time of widespread labor unrest (discussed below), the downward trend was reversed and the minimum salary gained in purchasing power.

Tabulations of the number of hours required to support a family of four in 1965 and 1975 provide a concrete illustration of the magnitude of the decline in purchasing power. A laborer in Sao Paulo, earning the minimum wage in 1965, had to work 87 hours and 20 minutes to provide basic food necessities for himself, his wife and two children. In 1975, the same basket of goods required 154 hours and 18 minutes of work, an increase of 76.7 percent. The sharpest price rise was for meat (103.7 percent), followed by rice, beans and milk [DIEESSE, 1974].

IV. THE DEMOGRAPHIC COST OF URBAN UNDERDEVELOPMENT

Mortality estimates provide useful indicators of the differential social costs of urban underdevelopment. The mortality rate is the result of the interaction of three sets of factors: (1) public health services that influence mortality regardless of individual behavior (such as aerial spraying of insecticides to control malaria); (2) health and environmental services that reduce the costs of health but require some individual response (e.g., the availability of clean water and hygienic behavior); and (3) an array of individual characteristics such as income (which affects health through nutrition and housing) and education (associated with the speed and efficiency with which individuals respond to health services and environmental threats) [Birdsall, 1980:16]. Because the level of mortality is determined by the combined effect of all these factors, the death rate provides a summary measure of the quality of life in a population.

4.1 Infant Mortality and Wage-Squeeze Policy

Infant mortality trends for Sao Paulo from 1964 to 1979 illustrate the relationship between economic policy, changes in the purchasing power of the minimum wage and the probability of death before age one. The infant death rate was just under 70 per thousand in the early 1960s. In 1965, when the real value of the minimum wage began to fall, the infant mortality rate reached a high of about 95 per thousand (a period when the purchasing power of minimum salary was 20 percent below its 1965 value). When real wages began to increase after 1973, the death rate dropped off. By the end of the decade, the real minimum salary rose 25 percent and infant mortality declined to a low of 64.6 per thousand live births.

Several methodological issues bear on a causal interpretation of the inverse correlation between the death rate and the minimum salary [see Wood, 1979]. However, strong evidence suggests that the rise in infant mortality in the late 1960s and early 1970s in Sao Paulo was induced by the wage-squeeze development policies, the cost of which fell most heavily on low-income families.

The infant mortality rate derived from vital registration statistics is an aggregate measure of the death rate in the first year of life for the city's total newborn population. Hence, the negative association between the death rate and changes in real wages earned by the poor is inferred rather than demonstrated since disaggregated estimates are not available. In order to measure actual mortality differentials among the various income strata, a different methodological approach is required.

4.2 Child Mortality and Income Distribution

Conventional estimates of the death rate (such as the infant mortality rate) rely on vital registration statistics, a restriction that severely limits their scope and accuracy. A new approach, developed by William Brass [Brass et al., 1968], measures mortality indirectly from survey or census data. In the Brass method, the proportion of children surviving to mothers in different age groups (20-24; 25-29; 30-34), multiplied by the appropriate correction factor, yields robust estimates of the probability of death by exact ages 2, 3 and 5.

The Brass method is especially useful because, unlike the vital register, census data contain a wide range of information such as income and housing conditions. This means that, for the first time in Brazil, measures of differential mortality can be related to socioeconomic characteristics of the population.

In Table 5 we classify the population of women 15 to 34 years of age (the relevant cohorts for estimating child mortality using the Brass method) into three categories of family income. The life table 02, 03 and 05 values (shown in columns 2, 3 and 4) represent the probability of death between birth and exact ages two, three and five. The three estimates of child mortality are then converted into a single estimate of the implied level of life expectancy at birth (shown in column 5). This measure can be interpreted as the average number of years of life expected at birth that corresponds to the level of child mortality experienced by women within families of a given level of monthly income in 1970.

The level of life expectancy is inversely related to family income. Life expectancy within the lowest strata (the first four income deciles) is 58.9 years. Average length of life increases to 63.3 years for the middle group. In the highest income strata, life expectancy reaches a high of 73.1 years. On the basis of these estimates we can conclude that the number of years of life expected by the upper income population of Sao Paulo exceeds that of the poor by over fourteen years.

TABLE 5

SELECTED INDICATORS OF QUALITY OF LIFE BY DECILES OF FAMILY INCOME, SAO PAULO, 1970[a]

Deciles of Monthly (1)	Mortality Estimates[b] 0 - 2 (2)	0 - 3 (3)	0 - 5 (4)	Life Exp. (5)	Percent with Water (6)	Percent with Elec. (7)	Percent with Refrig. (8)
Low 1					6.5	23.2	4.9
2					19.4	51.5	17.4
3	.117	.144	.135	58.9	28.4	65.7	27.9
4					37.2	74.9	40.8
5					46.4	83.7	50.7
6	.104	.104	.098	83.3	48.7	86.2	55.0
7					58.5	92.3	68.7
8					68.1	94.5	79.9
9	.029	.057	.068	73.1	77.9	96.6	88.4
High 10					90.0	98.6	96.8

Source: One percent sample of Brazilian Census, 1970

Notes: [a] Based on the childbearing experience and household characteristics of women 15 - 34 years of age.

[b] The values for 0-2, 0-3, and 0-5 refer to the probability of death between birth and exact ages 2, 3, and 5 of children born to women living in families of a given income level in 1970. Life expectancy values in column 5 refer to the average number of years of life expected at birth that are implied by the three children survival rates (using South as the model life table).

4.3 Child Mortality and Urban Services

Additional social indicators, shown in columns 6, 7 and 8, offer further evidence of the unequal distribution of urban services (especially access to running water) and consumer durables (refrigerators). Piped water is of particular interest because of its close association with childhood survival rates. Estimates generated by the Brazilian census bureau indicate that, after controlling for income, children born to women in households with running water have a life expectancy over eight years longer than those in houses without piped water [IBGE, 1982:65].

V. RESPONSES TO URBAN UNDERDEVELOPMENT

In this section we turn our attention to various ways in which underprivileged sectors of the urban population respond to these conditions. We identify four different categories of behavior: the economic strategies that low-income households pursue in the face of income stress; the initiatives undertaken by organized labor; the mobilization of neighborhood organizations; and the occasional outbursts of collective violence.

5.1 Household Sustenance Strategies and the Urban Economy

That families experiencing economic stress are compelled to exert greater productive effort is neither a new nor surprising observation. At the same time, students of the Latin American urban economy have increasingly found it useful to focus theoretical and empirical attention on this dynamic aspect of household behavior. The concept of "survival strategies," proposed by Duque and Pastrama [1975] seeks to capture the various ways that people respond to the dilemmas of dependent industrial development.

In contrast to earlier conceptual approaches (e.g., modernization theory, the literature on urban marginality) which treat the urban poor as essentially passive folk, the focus on household strategies highlights the multiple initiatives members of the domestic unit undertake to actively negotiate structurally imposed constraints. Specifically, sustenance strategies refer to ways in which the household strives to achieve a "fit" between its consumption necessities, the labor power at its disposal (both determined by the number, age, sex and skills of its members) and the alternatives for generating monetary and nonmonetary income [Schmink, 1979]. In effect, these strategies reflect the way households adapt their internal structure to the forces that lie beyond the unit itself. "The study of household behavior," Schmink [1984:87] notes, "is pursued primarily as a means of bridging the gap (in social research) between social and individual levels of analysis." From this standpoint, "the domestic unit is conceived as mediating a varied set of behaviors (e.g., labor force participation; consumption patterns and migration) that are themselves conditioned by the particular makeup of this most basic economic unit."

In the advanced economies of the center, where the higher value of labor power has been won through labor militancy, the "family wage" (a single wage sufficient to maintain a working-class family), is a dominant characteristic, even among fully proletarianized workers. Such is not the case in peripheral economies where the urban working class lacks the political and economic power to achieve wages sufficient to cover the same expenses [Moser and Young, 1981]. As a consequence, other members of the family unit, especially wives and children, pick up the slack through productive activities performed mainly within the informal sector of the urban economy [Machado da Silva, 1982].

The income earned by wives is of particular importance to low-income households. This is shown by the data presented in Table 6. The average income wives earn is higher in the upper socioeconomic groups, as noted in the second column. However, a reverse pattern emerges when we express spouse's mean monthly earnings as a proportion of her husband's income. In the lowest decile the wife's income is nearly one-quarter (24.7 percent) of the income her husband receives. This figure falls to 4.1 percent in the highest income decile.

The sustenance strategies households undertake thus have significance, not only as an aggregation of individual means for survival, but also as a structural feature of the process of peripheral accumulation [Portes and Walton,

TABLE 6

WIFE'S AVERAGE INCOME AS A PROPORTION OF HUSBAND'S MONTHLY EARNINGS BY INCOME DECILES, SAO PAULO, 1970

Monthly Income of Male Household Heads (Deciles)	Wife's Average Monthly Income (in Cruzeiros)	Wife's Average Monthly Income As A Percent of Husband's Monthly Income
1	23	24.7
2	27	18.3
3	29	13.3
4	35	10.5
5	38	9.3
6	38	8.0
7	44	7.4
8	59	7.0
9	89	6.9
10	173	4.1

Source: One percent sample, 1970 census

11981:84]. The informal sector encompasses unpaid family labor and, when paid labor is employed, it is well below the official minimum with no social security protection. Informal sector activities therefore result in an output of goods and services at prices below those that could be offered in the formal sector.

The impact on the urban economy is significant in two respects. First, output of cheap goods and services from the informal sector, by reducing labor reproduction costs, maximizes surplus extraction within formal enterprises. Second, the existence of a cheap labor economy means that firms seek to minimize the number of workers protected by labor contracts and legislation [Portes and Walton, 1981:86]. In this sense the structure of the urban market is, to some degree, a function of the economic strategies followed by individuals and households. "The so-called informal sector," as Klaas Woortmann [1984:28] put it, "mediates between the logic of capital and the logic of the family."

The interdependence that is suggested by these observations (between the productive activities of low-income households and the structural features of Sao Paulo's urban economy) leads to an ironic conclusion: that the sustenance strategies households pursue in the face of economic stress serve to preserve and perpetuate the very economic conditions to which households are responding in the first place.

5.2 Organized Labor

Within the formal sector, unionized blue collar workers took an increasingly militant stance in the late 1970s. These developments were triggered in August 1977 by the startling disclosure that the manipulation of wage data for industrial workers in the years 1973 and 1974 may have caused a 34.1 percent loss in real income. Leaders of some 250,000 workers in Sao Paulo's automobile, electrical and chemical industries sought retroactive compensation for union members [Moises, 1979:52].

These demands soon spread to other parts of Brazil. In 1979 alone about 90 organized work stoppages took place in Sao Paulo, Rio de Janeiro, Rio Grande do Sul and Pernambuco in an eruption of labor resistance that involved over

1.2 million people [Souza and Lamounier, 1981]. These initiatives transcended the traditional scope of union demands. The "new labor movement" went well beyond the concern for better wages and working conditions to challenge the very structure of the corporatist framework in place since the time of Vargas in the 1930s. The objectives were to replace the centrally controlled wage policy by a system of free and direct collective bargaining; to remove unions from the tutelage of the Ministry of Labor; and, finally, to obtain an unrestricted right to strike.

To date the government has not acquiesced to union pressure to rescind the anti-strike statutes. Some concessions have been granted, yet the central features of the corparatist labor structure remain firmly in place. According to one observer [Tavares de Almeida, 1981], the strikes between 1978 and 1980 indicated that labor was sufficiently powerful to disrupt production, yet not strong enough to forge a new institutional arrangement, free of state mediation.

5.3 Neighborhood Organizations

Organized neighborhood organizations are not a new phenomenon in Sao Paulo, although the character and the focus of these institutions have changed in recent years. The Friends of the Neighborhood Society (Sociedades Amigos do Bairro, or SABs) founded in the 1950s brought together people in the outskirts of the city to voice local demands to municipal authorities. For the most part the SABs were dominated by liberal professionals and members of the small bourgoisie closely tied to, and in many instances dependent on, city officials. In the era of political populism of the 1950s and early 1960s SABs played an important role in the political bargaining for "collectively consumed" goods and services (housing, health, schools, transportation and urban facilities in general). Then it was a matter of mobilizing municipal votes to exchange for public works and city services. In the post-1964 authoritarian period, and with the centralization of political power, the SABs became dominated by ARENA politicians as local demands increasingly came to depend almost entirely on individuals well placed in the regime's political party [Singer, 1982:289].

As the SABs were coopted by the dominant political machine and transformed into benign groups, other institutions, notably the Catholic Community Organizations (Comunidades Eclesias de Base, or CEBs), came into prominence. The objectives of the CEBs, unlike the SABs, firmly endorsed the Christian values of equality and solidarity between community members. The CEBs thus tended to express, not only demands for local improvement, but also a more general critique of capitalist society. "Instead of assuming that the needs of the peripheral barrios and impoverished population stem from the negligence of the authorities and interested parties, privation is attributed to the very social organization inherent in capitalism" [Singer, 1982:290]. The broader philosophy of the Catholic Community Organizations implied a different and more radical stance vis-a-vis the political structure. Access to public services came to be viewed as a right to which all of the city's inhabitants are entitled.

The ideological underpinnings of the CEBs in Sao Paulo indirectly led to nationally recognized initiatives, such as the Cost of Living Movement (Movimento de Custo de Vida, MCV). In 1973, the Mothers' Club in several working-class neighborhoods protested the increase in the cost of transportation, health care and food. Two years later community organizers undertook a research project to document the deteriorating economic conditions. Soon other neighborhoods were drawn in. By 1977, seven hundred delegates met to elect coordinators for what by then had become a grassroots movement of substantial size. The MCV culminated in a petition, signed by over one million people, calling for a freeze on the prices of basic necessities and for an increase in wages. The petition met a cool reception in Brasilia when leaders of the MCV tried unsuccessfully in 1978 to personally present the document to the President [Singer, 1982].

The history of community action groups suggests that this form of political initiative is sure to continue to play an important role in Brazil's urban context. Whatever their successes or failures, these organizations (especially the CEBs and the MCV) alerted people to their collective dilemma and educated them to methods of mobilizing grassroots political pressure. Within Brazil's newly established democracy, these lessons may well provide the basis for popular initiatives to create a more equitable and more humane urban environment.

5.4 Collective Urban Violence

Other forms of protest have not been so peaceful. Under conditions of high urban unemployment and widespread poverty, individual acts of violence are commonplace in the city. In some instances, however, violent outbursts have involved thousands of people. In Sao Paulo and Rio, collective social actions of this kind have occurred on the commuter trains that connect the work place to the low-income residential neighborhoods located in the outskirts of the two metropolitan areas. In 1973, three major incidents involved burning train cars and destroying train stations. Six other quebra-quebras, as they are known in Portuguese, occurred in 1975. Ten such incidents took place in 1976. Estimates indicate that each one involved somewhere between three and five thousand people [Moises and Martinez-Alier, 1978:26].

A number of interrelated factors account for this kind of urban violence. For one thing, the stock of transportation equipment servicing the urban-industrial center has suffered from poor maintenance. In addition, the number of cars has failed to keep pace with the growing demand for transportation services. The result has been overcrowding, erratic schedules and an increase in the accident rate. At the same time, workers depend on the rail system for their very survival. Being late for work means loss of pay and, for many, the risk of being fired. In Sao Paulo, blue-collar workers who live on the urban periphery spend as much as three or four hours a day commuting to and from their job. This often means getting up at three or four in the morning to board the six o'clock train, and then returning home well after dark. An interview with one commuter clearly shows the extent to which workers depend on low-cost transportation:

> "I leave the house everyday at 5:30 in the morning to catch the train at 6:15, which gets me to work at 8 o'clock. I carry Cr$5.00 in my pocket: Cr$1.20 goes for round trip train fare and a few cigarettes. In my lunch pail I carry a handful of rice with some beans and, once a

> week, some meat. I keep my work card in my wallet at all times; without it I'd be arrested for vagrancy. If I were to use the bus I'd pay Cr$4.70 only on transportation. And if I spend more than Cr$5.00 the kids don't eat" [cited in Moises and Martinez-Alier, 1978:28].

Under these circumstances it is easy to see how the daily uncertainty of getting to work and back contributes to a volatile atmosphere in which a train accident, or delay in the schedule heightens the level of individual frustration. Moreover, the crowded conditions, and the shared danger of riding the trains, fosters a kind of collective identity among the commuters. As one worker put it, "When things go wrong, it only takes one guy to start yelling quebra! for the whole train to explode" [Moises and Martinez-Alier, 1978].

Underlying these collective outbursts are a number of structural changes in the urban economy. Moises and Martinez-Alier [1978] summarize the contradictions of industrial development in Sao Paulo that have increasingly placed the low-income working population at a disadvantage. On the one hand, the locus of heavy industry has become spatially concentrated in areas that no longer house a sufficient number of people to man the factories. Workers, drawn from outlying communities, rely on public transportation to get to work. Yet, the allocation of resources by the Ministry of Transportation has systematically favored roads and other expenses associated with automobile travel. This has benefited those who are sufficiently well off to afford a car, not to mention the makers of automobiles who have for many years received favorable tax and other incentives from the government. The daily economic and emotional cost of getting to and from the factory gates are borne by the men and women who work in the plants.

More recently, acts of collective violence have been directed against food stores and supermarkets. Food riots and looting came about with the increase in unemployment and the massive lay-offs that accompanied the economic recession in the early 1980s. These initiatives, as Yone and Barreira [1984] contend, cannot be dismissed as irrational acts that take place on a purely spontaneous basis. Rather, the saques are another reflection of the deteriorating economic conditions faced by the city's low-income population. Although poverty is hardly new to these people, the depth of the national crisis after 1981 lent special meaning to being laid off. An unemployed worker in Sao Paulo explained it this way:

> The difference now is that until 1981 you'd lose your job, yet you knew you could find another one. But then, from the beginning of 1982, you knew you'd never get another job if you got laid off. There's not a soul around here who's not scared [cited in Yone and Barreira, 1984:28].

The explanation for the looting offered by Yone and Barreira [1984] is consistent with Piven and Cloward's [1971] more general treatment of the relationship between unemployment and civil disorder. When mass unemployment persists for any length of time, Piven and Cloward argue [1971:6-7], it diminishes the capacity of other institutions to bind and constrain people. Occupational behaviors and outlooks underpin a way of life by which people conform to familial and communal roles. When large numbers of people are barred from their occupations, the entire structure of social control is weakened. If the dislocation is widespread, the legitimacy of the social order itself may come to be questioned. The result is civil disorder that may even threaten to overturn existing social and economic arrangements.

VI. CONCLUSIONS

All explanations of social change are characterized to a greater or lesser degree by a fundamental tension between an emphasis on the determinism of social structure on the one hand, and on the voluntarism of individuals on the other. Our objective here has been to meld both philosophical traditions in a study of Sao Paulo, the largest and most important metropolitan area in Brazil. In keeping with Castells [1983:XVI], our perspective endorses the view that cities and citizens should not be seen in isolation of one another. Instead, the structural features of the city's economy which determine the constraints people confront, as well as the actions individuals, and collectivities of individuals, adopt to contend with the conditions of underdevelopment imposed on them, are integral parts of the urban complex.

The first sections of this study emphasized the historical factors that have conditioned the structure of Sao Paulo's economy. The explanation stressed the macro-level factors that led to urban demographic growth, poverty, a highly skewed distribution of income and to limited employment opportunities for the majority of the city's inhabitants. We then explored the social costs of these structural phenomena by estimating differential mortality rates, and using other social indicators that reflect disparities in quality of life among subgroups of the population.

Later sections of the analysis turned attention to the various ways in which the poor urban population responded to the constraints of the urban economy. Adopting a voluntarist perspective, we examined four types of action. In some instances, as in the case of household sustenance strategies, the responses undertaken by the low-income population may serve to perpetuate the existing economic structure. In other cases (union militancy, the action of community organizations, the outbursts of urban violence) the initiatives pose a challenge to the socioeconomic and political status quo. The causes and the consequences of these forms of collective social action have important implications for Brazil's economic and political future.

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